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The Golden Knights

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The purpose of the *Bulletin* is to serve as a means of communication between the Department of Defense (DOD) and its authorized agencies and defense contractors and other business interests. It will serve as a guide to industry concerning official policies, programs and projects, and will seek to stimulate thought by members of the defense-industry team in solving the problems that may arise in fulfilling the requirements of the DOD.

Material in the *Bulletin* is selected to supply pertinent unclassified data of interest to the business community. Suggestions from industry representatives for topics to be covered in future issues should be forwarded to the Editor. Telephone queries: (202) OXford 5-2709.

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About the Cover

Members of the Army Parachute Team, the Golden Knights, soar through the air in a free-fall exhibition. The team, formed in 1959, has produced five national champions and several world champions.

The Armed Services Board of Contract Appeals

George L. Hawkes

This article was prepared primarily for the benefit of contractors' administrators doing business with Defense Department and general legal practitioners who infrequently deal with defense contracts. The comments may also prove helpful to government contract administrators with limited experience in the disputes field. Simplifications and generalities should not mislead one into a false assumption that expertise in the field is unnecessary or lacking. Many eminent lawyers in private practice and in government service have devoted most of their careers to the field of government procurement, which has developed into a field of legal specialization with its own legal precedents and literature. This has been recognized by the American Bar Association which recently gave public contracts "section status" as a separate field of law. There always has to be a meeting ground between the layman and the expert based on infinite considerations, and it is to this area that this article is addressed.

Have you had problems lately with your defense contracts? Have the contracting officer and officials of your company been thinking on different wave lengths? Has there been a breakdown in communications? Have you wondered what an appeal under the disputes clause in that contract really means? Certainly the Secretary of the Service is too busy to give you the hearing to which the disputes clause entitles you. Therefore, probably you will have to exercise that contract privilege with the "duly authorized representative." That is the Armed Services Board of Contract Appeals.

This Board is composed of 28 members, all attorneys who devote their full time to hearing, considering and deciding appeals from decisions of contracting officers on disputed questions, where the contracting officer's decision was unacceptable to the contractor. The contracting officer's decision will recite your right to appeal the decision within 30 days, and it is this appeal, if made, which confers jurisdiction on the Board. The authority of the Board is essentially based on the terms of the contract and not derived from statute or other law. Each Board member receives his appointment from the four Assistant Secretaries in charge of the procurement programs of the Army, Navy, Air Force and Defense Supply Agency. It should be noted that since the Board's authority derives from the terms of the contract, you must file that appeal within the time limit in the contract, namely 30 days.

Once the appeal is made, the rules promulgated by the Board govern the processing of the appeal. These rules are designed for the fair, orderly, expeditious and inexpensive processing of your appeal but are not considered jurisdictional, so that failure to comply with precision with a particular rule is not fatal to your rights. There is one exception. Motions for Reconsideration will not be considered unless filed within 30 days after receipt of the Board's original decision.

Whether you file your appeal with the contracting officer, the Secretary of the Service making the contract, or in some instances the Board, you will receive a notice of docketing and a copy of the Board's rules. These are mailed shortly after the appeal has been received in the Board's offices. The attorney designated by the Department to represent the Government will be notified at the same time. Sometimes after a brief review by the lawyers in the Department, the dispute may be settled and that is the end of the problem. Most often, however, you will have to file a complaint in accordance with the Board's rules. The Government will file an answer and in this way it is hoped the differences can be clearly delineated and the issues joined.

Once the issues are joined, there are two ways to proceed. Sometimes there are few, if any, disputed facts in an appeal. In these cases the dispute is really about the legal conclusions to be derived from admitted facts. One often decides to submit this type of case on the record, possibly supplemented by affidavits and usually a brief setting forth your interpretation of the legal incidents which flow from the particular facts. The advantage to this system is a quicker decision, and it is appropriate where cross examination, confrontation of witnesses, and extensive oral examination are not necessary to establish the facts. The layman sometimes fears that election of this procedure may indicate to the opinion writer on the Board a lack of interest in the claim. This simply is not so.

More frequently the facts are not so clearly delineated. In these instances a hearing is available, necessary and, hopefully, helpful in clarifying oftentimes extremely complicated factual situations. This is the heart of the Board's proceedings. One afternoon a small contractor came into the office prior to his hearing scheduled for the next day. He asked the usual questions and I gave the usual answers about the hearing, its conduct, and what he might expect. Something deeper, however, was on his mind. He started to leave, and then returned and started to unload his troubled mind with a candor and certain lack of sophistication which I have often thought would have been the envy of many others with a similar problem. Essentially he wanted to know if a little fellow really stood a chance up here in the Pentagon, with the Department of the Army represented by specialists in this field and the Board composed entirely of lawyers. Direct answers would have either generated false hope or added dispair. He was far too astute to be satisfied with the bland facts often saved for moments like this—statistics. Finally I said, "All I can say is that we get about an equal number of complaints from appellants and from the "Government." This may appear awkward, but it is remarkable how close is the case and the particular litigant's feeling of the value or effectiveness of the tribunal that renders the decision. Nobody expects a person, who has developed strong feelings about his rights in a particular matter, to suddenly turn objective in his appraisal of a final administrative decision. We at the Board feel, however, that probably one of our successes has been to have a set of rules and be able to conduct hearings in a manner that can accommodate an appellant representing himself, a general practitioner, and lawyers who are specialists in the field of defense procurement.

Two things should be mentioned for those not familiar with a Board hearing. The hearing itself is often likened to a hearing before a judge without a jury. Formality vs. informality are often adapted to the circumstances, but informality should never be confused with carelessness. Second, the Board has built up a considerable body of contract and legal principles. Decisions have to be based on these principles. Often persons, who represent themselves, are prone to stress the so-called equitable factors or the unfairness of the situation in which they find themselves. Relief is granted as a matter of right and not as a matter of grace. Among many types of cases the Board has had to decide, several allege impossibility of performance under the specifications. This covers a substantial field of issues and answers, but even the layman must recognize that the key premise must be that the product cannot be made. Likewise, since the Board is a legally-oriented group, it may be necessary to expand on the theme of why it is impossible to make the product in terms which can be understood by one who is not an authority in the particular technical field.

Subsequent to the hearing and after the parties have submitted legal briefs, the Board starts its consideration of the case and renders a decision based on the appeal record. This decision, usually drafted by the person who conducted the hearing, has to be reviewed by at least one more Board member and the Chairman and two Vice-Chairmen of the Board.

Sufficient for the mechanics of the Board. Where does it fit into the procurement picture of the Defense Department, and where does it stand as part of the appellant's exercise of his legal remedies? I have not seen any statistics recently about the number of procurement actions by the Defense Department but approximately 900 per year will entail a dispute sufficiently serious to generate an appeal. This must be a very gratifying figure to the Department because, by definition, a dispute means that there has been a breakdown in the orderly processes of the departmental procurement program. Certainly 900 is an infinitesimally small number in the overall procurement program, and even many of these disputes are settled prior to a hearing. The disputes run from a dandy little case involving $4.50, which generated a split decision, to cases involving millions of dollars. Still other cases might not involve truly large sums of money, in themselves, but may affect many contracts involving the same issue. Some are of such magnitude to the individual company that they are literally a matter of economic life or death. In no accepted sense does the Board make departmental policy, but it frequently is the final interpreter within the defense establishment of regulations and contract provisions implementing that policy. Since the Board is independent in its determinations, its decisions are often reflected in departmental policy where later pronouncements agree with or modify that which was in existence at the time of an opinion's publication.

George L. Hawkes is recorder of the Armed Services Board of Contract Appeals. He was graduated from the University of Pennsylvania Law School. He engaged in private law practice in Maine until 1954, when he went to the Pentagon to serve as a legal advisor in the Civilian Personnel Security Program of the Air Force. He has served in his present position since 1957.

The exercise, or failure to do so, of your right to appeal may have a substantial bearing on future legal proceedings in a court of law. Essentially, decisions by the Board are final as to questions of fact if supported by substantial evidence in the record before the Board, but questions of law are reviewable *de novo (i.e.,* without regard to the Board's holding) by the courts. An explanation of the difference between law and fact is purposefully avoided, as most issues involve a mixture of law and fact. The Board's work is recognized by the Wunderlich Act, May 11, 1954, Ch. 199, 68 Stat. 81 41; U.S.C. 321–322. It has been significantly recognized in three recent Supreme Court Decisions: *U.S.* v. *Bianchi*, 373 U.S. 709 (1963); *U.S.* v. *Anthony Grace & Sons, Inc.*, 384 U.S. 424; and *U.S.* v. *Utah Construction & Mining Co.*, 384 U.S. 394. If your attorney does not deal frequently with the specific field of government contracts, he might be interested in reviewing these cases which are accessible in law libraries.

The average case, which is processed through the Board, including a full hearing, takes approximately a year from the date of docketing to the date of decision. Like all averages it seldom applies to an individual case. You can, however, correlate this time with a case of average complexity. Of course, this average does not include extensive pre-hearing procedures or other delays which may be necessary but often are not a part of the average case. Most procedures available in the courts are available to litigants before the Board. The Board does not itself have the power of subpoena. The subpoena can be used in very limited circumstances based on the U. S. Code, 5 U.S.C. 304(a). This is exercised very infrequently and involves a rather tedious legal process. In lieu, the Board will direct attendance of government employees on an adequate showing that they are necessary for the presentation of a contractor's case. In like manner, most discovery procedures available in the courts are also available before the Board.

Hopefully the foregoing gives a manager, administrator, or other responsible executive a rough idea of what he gets into when he decides to exercise his right to appeal under the disputes clause. The decision itself, I presume, has to be based on economic considerations but sometimes the principle involved outweighs the economics. Remember the $4.50 case?

A vast majority of the disputes filed with the Board involve sums between $1,000 and $5,000, though several huge cases have increased the average claim to $60,000. This latter figure, based on incomplete statistics, has almost doubled in the past six years.

The decision to appeal is the sole prerogative of the contractor, as the Government has no right of appeal. These decisions encompass a broad range of the defense production spectrum. At one time we had a run on toilet tissue cases. Surplus property cases sometimes develop humorous fact situations, not funny to the parties but opportunities to test a Board member's sense of humor while going about the most serious business of deciding a contractor's rights. Sweet potatoes offered a knotty legal problem. At the other end of the spectrum, sophisticated weaponry, complicated engineering problems, and involved accounting cases are frequently heard. As every other similar organization, however, the bulk of cases involve problems met frequently in equipping a defense establishment of the magnitude of ours. Terminations for default, questionable workmanship, specifications not always clear, over-zealous inspections, under-zealous performance, tardy delivery are the same problems as you might have in building a house or other work for which one might personally contract. Simple, average, or sophisticated, the problem is solved by that special field of contract law known as government contracts.

Since the appeal is the contractor's, many comments herein have been addressed specifically to him; however, the Government (those representing the procuring department) otherwise has parallel or correlative rights. Unlike some government agencies which have organizations to assist the public, the Board assumes that people contracting to sell goods and services to the Defense Department have a certain degree of competency to deal with the Department. Under these circumstances it has, since at least the inception of the Board in its present form, assumed that the best way to the truth is through adversary proceedings.

Departmental counsel is paid to represent the Department, the Board to render an independent, impartial decision. Essentially this means that a general practitioner, or one representing himself, can present his case to the Board without fear of being bogged down in the mire of procedural queries. It does not mean he can expect the Department to make his case for him, or do other than put its best foot forward.

Eventually comes opinion time. It usually comes substantially sooner than most full court proceedings. If, even though cogent reasons are set forth in the decision of the Board, you are unhappy and dissatisfied with the result what recourse do you have? The Board is the final authority in the Defense Department. Now that you have exhausted your administrative remedy, you may bring an action in the U.S. District Court (if the claim is under $10,000) or the U.S. Court of Claims. The Supreme Court citations given before may furnish some guide lines in considering that which is involved in turning from the administrative level to the judicial branch of the Government for the relief you desire.

We on the Board hope, as I'm sure you do, that it does not become necessary for you to invoke the disputes procedure. But if you do, we trust that you will find your experience hardly the ogre you might have anticipated in the past. It is a device which has been exercised in its present form for 25 years.

We hope the experience will be enlightening and, if the final decision is not fruitful, at least you will feel that you have had the fair, courteous treatment to which you are entitled as an active associate of this country's defense establishment.

AUTODIN Modernization Contract Awarded

The Defense Communications Agency (DCA) has awarded a contract to the Western Union Telegraph Co. for the modernization of a portion of AUTODIN (Automatic Digital Network).

DCA awarded the contract through its Defense Commercial Communications Office (DECCO), Scott AFB, Ill., which will service the contract. It calls for estimated monthly recurring use charges of $20,000,000 in the project, with the Radio Corp. of America and Control Data Corp. participating as subcontractors.

Work will include replacement of some equipment at all nine AUTODIN centers now being provided by Western Union.

Equipment to be installed will consist mostly of communications data processes, memory units and tape stations.

Completion of the modernization project will improve the operational efficiency, improve the reliability of operations, and will reduce power and air-conditioning requirements at each center.

The first site is scheduled for completion by Sept. 30, 1969, with the last site completed by March 15, 1971.

AUTODIN is a data transmission and switching network.

AUTODIN centers are located at Albany, Ga.; Andrews AFB, Md.; Fort Detrick, Md.; Gentile AFS, Ohio; Hancock AFS, N.Y.; McClellan AFB, Calif.; Norton AFB, Calif.; Tinker AFB, Okla.; and Wahiawa, Hawaii.

Output—
Closing the Management Loop

Lieutenant Colonel George B. Coe, USA

On May 24, 1966, President Johnson addressed a letter to all government departments and agencies in which he said: "I want every manager to think of his part of the total Government in terms of everything he owns, everything he owes and the full cost of doing every job *in relation to the products resulting from these costs.* I want him to think of minimal costs and cost reduction as profit. And I want him to think in terms of his profit as a result of how he uses all the resources entrusted to him. These goals cannot be fully achieved without sound financial management practices."[1]

In response to the President's directive, Secretary of Defense McNamara on June 13, 1966, stated that "a new accounting structure is being designed, with accounts arranged so that they will provide information in the form needed (a) for programming, (b) for budgeting, and (c) to assist management in operations. This will permit the integration of the programming, budgeting, and management process." He further stated that " *the focus will be on outputs* and on resources used, that is on expense."[2]

On March 3, 1967, Secretary McNamara issued a memorandum to the heads of the major Defense Department components in which he said: "I am gratified by the progress. Much, however, remains to be done. In addition to the tasks of completing the expense system for operations and developing an improved system for research and development, I want particular emphasis given to the development of improved ways to measure output."[3]

In a memorandum of March 16, 1967, Robert N. Anthony, Assistant Secretary of Defense (Comptroller), stated: "Expense accounting is only half the story, however. The other half is *output* data, a measurement of results achieved that can be matched with expenses incurred."[4]

On July 18, 1967, the Executive Office of the President issued Bureau of the Budget Bulletin Number 68-2 which requires the development of quantitative measures of end products or services, oriented to the structures like the Five Year Defense Program.[5]

Following the issuance of these requirements for development of improved measures of output as a function of resources consumed, the Assistant Secretary of Defense (Comptroller) took the lead by convening a preliminary joint study group, composed of representatives from the Military Departments and the Joint Chiefs of Staff, to identify the nature of the problems involved and recommend useful future actions. The preliminary study group met on May 24, 1967, and adjourned on May 31, 1967. The study group formulated a practical definition of the term "output measures" and concluded that: The Office of the Secretary of Defense (OSD) should identify the prospective users and uses of output measurement information, following which concurrent actions should proceed to identify the general characteristics of a fully adequate output measurement information system, and to determine what requirements would be imposed upon the Defense Department to provide and process the necessary information.

As a result of the report by the Assistant Secretary of Defense (Comptroller),[6] a Directorate for Output Measurement Systems was established within the Office of the Deputy Assistant Secretary of Defense (Management Systems Development), and was staffed with officers from each Military Service to begin work on this program.

Concept

Essentially, the Output Measurement Systems Program seeks to identify and provide capabilities information heretofore not available within the framework of the Planning - Programming - Budgeting - Accounting System (PPBAS). It sets out to describe the end product of all previous phases of the PPBAS.

Figure 1 illustrates how the development of precise measures of output information closes the loop in the PPBAS. Processing of information within each one of the steps shown, and converting it into implementing decisions at the next step, requires the ability to arrange and account for information in precise detail. Unfortunately, the means used to identify, acquire and process measures of output are not so precisely identified or described as they are in the other phases of the PPBAS, thus true measures of output achieved as a result of resources consumed have frequently not been available.

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[1] *White House Memorandum, "Joint Financial Management Improvement Program," May 5, 1966. (Emphasis supplied).*

[2] *Secretary of Defense Memorandum, "Joint Financial Management Improvement Program" June 13, 1966. (Emphasis supplied).*

[3] *Secretary of Defense Memorandum, "Financial Management Improvements," March 3, 1967.*

[4] *Assistant Secretary of Defense (Comptroller) Memorandum, "Financial Management Improvements," March 16, 1967.*

[5] *Bureau of the Budget Bulletin 68–2, "Planning-Programming-Budgeting (PPB) System," Executive Office of the President, July 18, 1967. (Superseded by Bureau of the Budget Bulletin 68–9, April 12, 1968.)*

[6] *Report by a Preliminary Study Group, "Improved Ways of Measuring Output," May 31, 1967.*

The purpose of the Output Measurement Systems Program, as approved by the Deputy Secretary of Defense in DOD Directive 7000.4, "Output Measurement System," dated April 13, 1968, is to effect a major improvement in the:

- Capability to describe the output of all DOD organizations.
- Quality, availability and utility of output measures to support and influence decisions, affecting both the employment of forces and the management of resources.

The Defense Department, as the largest department of the Federal Government, is not organized or designed for motives of profit as are organizations in our civilian community. However, the very magnitude of its operations, involving a total estimated budget of over $80 billion for FY 1969, requires the development and exercise of improved management techniques, in many ways similar to those used in civilian organizations, to ensure the maximum output for moneys expended. It is within this context that output measures are defined:

> **Useful descriptions of (a) functions, tasks, or missions performed by an organization expressed in relation to those assigned, and (b) capabilities possessed, compared to those for which the organization is designed.**

Every organization — whether a ship, an infantry battalion, or an aircraft squadron—has been configured and allocated resources to enable it to perform currently assigned functions, tasks, or missions. These organizations also consume resources or inputs in maintaining their capability to perform other functions, which they are expected to be able to perform if called upon. For example, during a given 30-day period, a bomber squadron was directed to destroy 100 targets (performance assigned). The squadron actually destroyed 83 of these targets (actual performance). Simultaneously, the squadron was designed, configured and tasked to be capable of delivering nuclear weapons against 12 targets if directed (designed capability). By a detailed examination of the resources actuallly available to the squadron, its commander estimated that it actually possessed the capability to deliver nuclear attacks effectively against only eight of these targets (actual capability). Thus, during this 30-day period, the squadron consumed resources to produce an output which included factors of two kinds: actual performance (such as delivery of conventonal attacks) and actual capability (such as capability to deliver nuclear attacks).

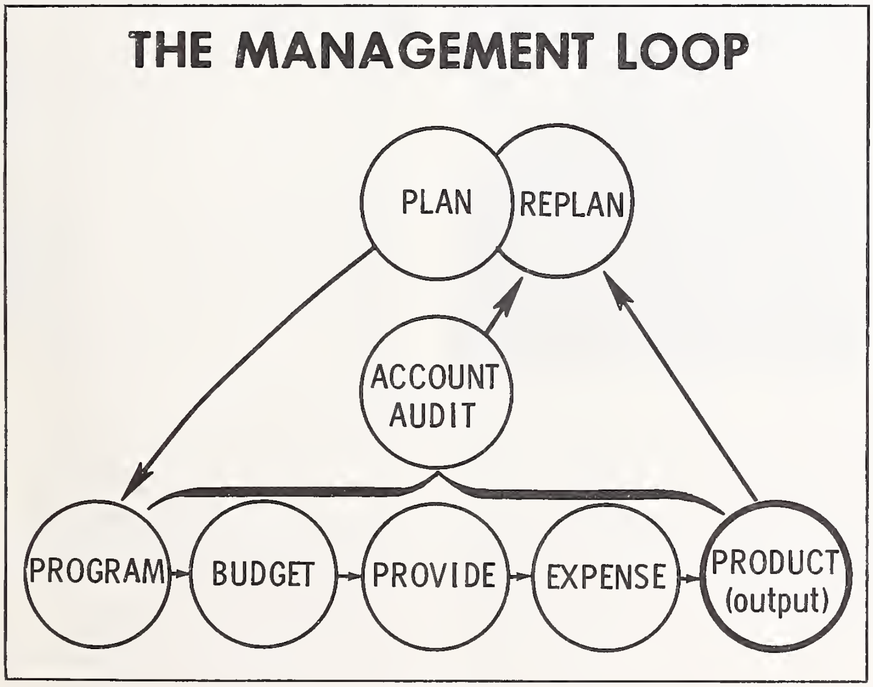


Figure 1.

Output measures presently exist for many organizations in the Defense Department. However, in most cases these measures apply to support type organizations and are described as number of meals served, vehicles repaired, tons of supplies moved, number of students graduated, number of patients treated, etc.

How is output measurement information used by the staff in supporting the decision-making process?

- They examine historical records showing functions actually performed and capabilities actually possessed by similar organizations during representative periods.
- They analyze these records of past output in conjunction with corresponding records of the resources known to have been available to the organization, and the environmental conditions known to have been in effect, in order to improve initial correlations among these factors.
- They calculate what resources should theoretically be required to produce certain results, or output. They may employ models to determine and test how output is most likely to vary in response to assumed changes in input, deriving tentative correlations as a basis for further work.
- They ascertain from the organization manager what levels of output the latter desires the organization to be able to produce in the future.
- They calculate, applying the relationships between outputs and resources which they have already established, what changes in resources or in the management of the organization will be needed, in order to attain the desired levels of output and determine the costs of any needed resources.

The organization manager, with his staff's recommendations, weighs the prospective change in output against the costs of resources or actions needed, and makes his final decisions.

After implementation of these decisions, the manager and his staff observe and continuously evaluate the actual output of the organization in light of the desired output and the resources consumed.

Development and Implementation

The events that are partially described herein will be expanded and more fully developed with the issuance of the DOD Output Measurement Systems Development Plan. Those events that are cited here are the initial steps in a program that may take several years to fully develop, refine and implement.

Eventually, the Military Departments must initiate actions to develop documented information lists of Designed Organizational Capabilities (DOC) for each type of organization within their force structure. Initially, however, the magnitude of this event will be limited by the issuance of test guidance from OSD. Nevertheless, certain preliminary steps are being undertaken to ensure an orderly approach to the development of the entire program, and to determine if the results of this initial test provides information useful to the Military Departments, the Joint Staff, and offices or agencies within OSD.

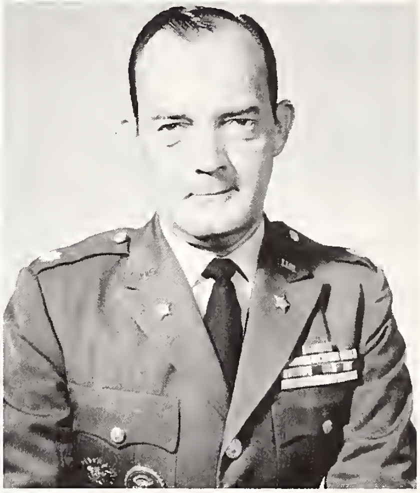
Nature of Capabilities Information.

Capabilities information consists of official assessments of the capabilities of DOD organizations. Each assessment of capability results from an analysis of organizational performance data, environmental conditions, resources observed to be available, correlations previously established among these factors, and contributory assessments of capabilities. The capabilities to be appraised include all those which the organization would be expected to possess if it were in all respects equipped, manned and trained to fully accomplish its assigned mission.

Distinction Between Resource Information and Capabilities Information.

Current data reflecting the resources actually available in an organization is valuable for making decisions, since it is often obvious that a specified resource deficiency will inevitably result in loss of certain designed organizational capabilities. Lack of ammunition obviously results in reduction of effective firepower. However, the same designed organizational capability may be affected by other less obvious conditions. Even with ammunition replenished, firepower may still be degraded by lack of training or repair parts. On the other hand, a single resource deficiency may result in the loss of several designed organizational capabilities. A critical shortage in electronics repair personnel may result in loss of firepower, communication with maneuvering elements, and even a degrading of the effective command and control of the organization.

The establishment of dependable correlations between resource deficiencies and degradations of designed organizational capabilities requires the determination of all capabilities which the organization has been designed and equipped to accomplish, plus an extensive analysis of recorded observations of the relations established.



Lieutenant Colonel George B. Coe, USA, was assigned to the Directorate for Output Measurement Systems, Office Asst. Secretary of Defense (Comptroller), when this article was written. He has served on the military staff, Office of the President, and the Army General Staff. He is presently on duty with the Headquarters, Deseret Test Center, Fort Douglas, Utah. In 1967 he earned a masters degree in government from George Washington University.

OSD and Defense Agency Requirements for Output Measurement Information.

Implementation of the DOD Output Measurement System Program will, in itself, neither entail nor preclude establishment of new requirements for recurring reports. It is the normal prerogative of every commander to call for such reports from elements of his command as he considers necessary and feasible. Improved output measurement systems should serve to reduce redundancy and duplication in existing reports, improve their quality and usefulness, reduce the administrative effort required for their preparation, and forestall new requirements for information already being reported.

Apparent Deficiencies in Performance Information.

In general, considerable effort has been and is being expended to organize and improve resource information in the Defense Department and elsewhere. This is not true regarding output information. Performance and capabilities information appears to exist in considerable volume, but remains difficult to manage for the following reasons:

- It is frequently difficult for the analyst or staff officer to determine what performance information presently exists which will serve his immediate purpose.
- Once located, performance information is difficult to transfer from source to user. Security classifications become a major problem in transferring automated data.
- Performance data are largely recorded in non-standard format and are, therefore, difficult to correlate with resource data, environmental information, performance standards, capabilities information, or other performance data, and difficult to employ in automated models.

Apparent Deficiencies in Capabilities Information.

Recorded assessments of actual capabilities are subject to all of the deficiencies mentioned previously in relation to performance information. Additional deficiencies are:

- Without standardization of units of measure and data elements, capabilities assessments generally cannot be correlated with performance data so that the total picture of an organization's output is, under these conditions, difficult to form over any selected period of time.

- Means do not exist whereby all significant changes in the capabilities of every organization can be assessed and recorded, particularly in circumstances where changes occur rapidly.

- Functions, tasks, or missions which certain organizations are expected to be able to perform, when fully equipped, manned and trained, have not been documented. For such organizations, it is not possible to compare actual ouput with designed or planned output.

- To assist the analyst in determining the reliability of assessments of capability, particularly those made by commanders in the field, information is generally unavailable as to the standards or methods of evaluation upon which such assessments are based. This reduces their values so markedly that the analyst is prompted to discard such information as being the product of "subjective judgment," without much value for analytical purposes. On the other hand, information regarding possession of many capabilities remains unobtainable from any source other than local evaluations.

- Up-to-date capabilities information is not available to OSD, either to keep track of important changes in current capabilites, or to discern trends or comparisons meriting further study.

Corrective Measures Initially Planned.

The Output Measurement Systems Program proceeds from the assumption that the need for the following types of corrective measures is sufficiently evident to warrant implementing action:

- Documentation, within the Services, of those functions which each organization is expected to be able to perform, when fully equipped, manned and trained.

- Determination, by OSD and the Services, of those elements of terminology, units of measure, coding structures, data element formats, and related methods of expressions, for which uniformity and compatibility on a department-wide basis would be useful. (This will require review of all output measures in use and needed throughout DOD.)

- Determination, by the Services, of requirements for improved automatic equipment for recording performance data and environmental conditions, for up-to-the-moment assessments of capability, and for transferring, storing and sorting available output measurement information by rapid means under secure conditions.

- Establishment, by the Services with OSD coordination, of automated cataloging facilities in order to keep track of what performance and capabilities information is currently available; and to show what types of data collection equipment and instrumentation are in use or under development.

- Adoption throughout DOD, with OSD coordination, of the best possible techniques for recording and rapid handling of information available in narrative form.

- Modification of the Joint Operation Reporting System to reflect the current capabilities of major units of the operating forces on an up-to-date basis, and establishment of a similar structure by which the current capabilities of logistic and support organizations can be quickly reported, when required.

- Institution by the Services, with OSD coordination, of research and development programs addressing advanced techniques for originating, transferring, and using output measurement information for both management and operational purposes.

- Establishment of effective feedback procedures so that all activities recording and reporting output information are apprised of the results of their efforts.

The establishment of a Planning-Programming - Budgeting - Accounting System by OSD has resulted in major improvements in the management of resources allocated to the defense establishment. Exhaustive efforts over the past several years by the Military Departments, the Joint Chiefs of Staff, and the offices and agencies within OSD are responsible for the successful implementation of this system.

Although defining and establishing precise output information for military organizations is a complex task, it is necessary that the Military Departments develop adequate procedures for describing the output of each type organization. The development of this information, heretofore not available, must be viewed as the real "pay-off" of efforts to develop improved resource management systems, and will be responsive to the requests of the President and the Secretary of Defense.

The establishment of an Output Measurement Systems Program is evolutionary and consistent with the financial management improvement programs that have originated within the defense establishment. The program builds on the previously well established procedures designed for closing the "management loop."

AFA Sets Fall Meeting

The fourth annual Fall Meeting of the Air Force Association will include three days of aerospace management seminars and the largest industrial display in the history of the meeting. All will be held in the Sheraton-Park Hotel, Washington, D.C., Monday through Wednesday, Sept. 16-18.

Monday's topic will be "Aerospace Test Facilities: A Shrinking National Resource." Tuesday's subject, "The International Aerospace Market," will cover the incentives and barriers now shaping America's future position in the world marketplace. Wednesday's seminar will cover "Commercial Supersonic Flight."

Forty-one aerospace defense firms will show equipment and present 45 daily briefings. Attendance is expected by employees of the Defense Department and other government agencies. Morning visitors may select and attend nine of the briefings in escorted groups of 15 to 20 persons. Afternoon visitors may attend any of the briefings.

Although there is no admission fee for the displays, luncheons, or receptions, advanced registration is required to fill quotas. Registration forms are available in government offices.

The Fall Meeting will also feature an Air Force-Industry luncheon, and the annual black-tie anniversary dinner-dance saluting the U.S. Air Force.

Guidelines for Developing and Submitting Unsolicited Proposals

[*Editor's Note: The guidelines for developing and submitting unsolicited proposals to the Army, Navy and Air Force were published in the May, June and July 1965 issues of the* Defense Industry Bulletin. *Beginning with this issue, we are publishing another series of articles on the same subject for the benefit of our many new subscribers, as well as to update the information. The current series will reflect the most recently published instructions, pertaining to unsolicited proposals, provided by the three Military Services.*]

Many important defense research and development production programs result from unsolicited proposals made by companies having a sincere desire to apply their talents and facilities to national security. While not as many such proposals are adopted as may be considered desirable by industry, the Defense Department still considers unsolicited proposals a vital factor in fulfilling its military requirements.

An unsolicited research and development proposal is a document voluntarily initiated and prepared by a potential contractor offering a possible solution to a defense problem or requirement. It is usually the result of a decision by a company that it has conceived something new or novel and that, if sponsored, it can demonstrate the idea has both scientific merit and military application.

Criteria for Determining Whether To Submit a Proposal

In deciding whether or not to submit a proposal, industry should ask, "Are we uniquely qualified or particularly competent in this field?" Even if the answer is no, the question can be re-phrased to ask, "Are we at least as well technically qualified as anyone else?" Finally, the question should be asked, "Would it make sense for the Government to give us a contract for this work?"

If a company is convinced that it is uniquely qualified to tackle a problem, it is probably in a position to write a highly acceptable proposal, with a good chance for support. One of the rules of thumb to follow for any proposed is: If you can demonstrate uniqueness by virtue of personnel, proprietary techniques, patents, or facilities—spell it out. It all adds up to being able to offer the Government the most economical answer to its problems. Frequently, companies are anxious to expand into new areas to diversify their activities. However, unless the company can demonstrate that its activities in another field are applicable to a military problem at hand, unsolicited proposals based on such expansion may not be accepted. Insofar as research and development is concerned, the Government does not normally play a role in assisting industrial organizations in diversifying their activities.

Ground Rules for Preparing Proposals

In organizing a proposal, several considerations should be kept in mind. First, as with any technical document exceeding 5 or 10 pages, a summary is desirable. This permits the sense of the proposal to be gathered at once, and helps orient the reader.

After the summary, an introduction may be desirable, depending upon the circumstances. Basically, an introduction is intended to acquaint the reviewer with the problem and lead him into the body of the proposal. If the summary has already done this, it is unnecessary to repeat the entire message solely for the sake of having an introduction. In some cases, the introduction is a logical place to present additional information that will help justify the selected approach. This may take the form of information regarding some unique process or technique particularly well suited to the problem, or a brief explanation of the potential that the proposal offers for other problems facing the Army. In either case, the intent is the same—to offer evidence supporting the proposal.

The next major portion of the proposal is usually the statement of the problem. The intent of this section is to demonstrate the company's understanding of the problem. In many respects, it is one of the most difficult sections to prepare because it should present enough information to demonstrate an appreciation for the subtleties of the problem without going into a prolonged technical analysis. Remember that the proposal is intended to demonstrate how the company would go about solving the problem, not its ability to restate the Government's problem. In rare cases, the statement of the problem may justifiably require supporting information, such as historical data or a summary of the present state of the art. To avoid cluttering up the proposal, it may be well to extract the pertinent facts of such sections and relegate the details to an appendix.

Once the problem has been stated, the proposed approach to the problem should be given. In many respects, this is the heart of the proposal, for it is the section that usually receives paramount attention. A well stated understanding of the problem, the best facilities, the most talented personnel, and all the other advantages that a potential contractor can offer, may be unimportant if he does not offer a logical and promising approach.

The makeup and organization of the team proposed for the work should also be spelled out; and again, in order to keep the proposal uncluttered, résumés of the team members should be given in an appendix. Some contractors choose to include names of people who will have little or no connection with the program. To the extent that such résumés indicate the attributes of personnel who will make supervisory or tangential contributions to the program, this may be worthwhile. On the other hand, résumés of people who by their title or position do not appear remotely connected with the program could be construed as padding.

In some programs, the work proposed may be scheduled in several phases or work units. If so, it is desirable to present a section titled "schedule," in which the work is displayed along the projected period of performance. For convenience and clarity, a simple bar graph may be effective. In many instances, it may be worthwhile to include a section on "specific qualifications." This is a useful means for presenting information on past or concurrent efforts that have specific bearing on the proposed program. In particular, specific contracts in related fields should be mentioned. This section may make reference to facilities or other company experience presented in an appendix.

Finally, the body of the proposal should contain a firm contractual statement summarizing the scope of work, and offering to do it for a certain sum and within a certain time. A detailed cost breakdown can be relegated to an appendix.

Beyond the body of the proposal come the various appendices referred to in the proposal. Even if having only general reference in the body of the proposal, any information or photographs that will demonstrate ability to undertake the work should be presented.

Basis of Evaluation by the Army

It would be well at this point to examine the source of the various policies and practices that govern proposal evaluation and consider the important factors which the evaluator has in mind. DOD procurement practices are governed by the Armed Service Procurement Regulation, and the basic rules for evaluating research and development proposals are presented in this regulation. The item of primary importance is the technical superiority of the proposal. All the résumés, annual reports, leatherbound covers, and three-color overlays in a proposal will be useless in swaying the evaluator's opinion of the technical presentation, unless the submitter has demonstrated that he understands the problem, and that he has a well thought out approach which shows signs of promise if executed as described.

On many occasions, proposals have been rejected because the submitter underrated the importance of technical superiority of a proposal. In any proposal, revolutionary ideas that offer the possibility of significant scientific breakthroughs are attractive. However, even old, well established approaches can win contracts. This is particularly true where the reasons for previous failure of these approaches are analyzed and a new and promising solution proposed.

A clear understanding of the ultimate needs of the agency for whom the work is proposed will also assist in proposing attractive approaches. Often before preparing a proposal it may be helpful to discuss the matter with representatives of the agency concerned. If a proposal involves the development of a material that will be used in large quantities, then what will be the effect of an approach based on material in short supply? In many instances, the availability of material may have a decided effect on a given approach. Similarly, if a submitter has done his homework properly, he may find that the agency itself has done some work on the approach the submitter has in mind, and may have some definite ideas about it.

A technical evaluation of a proposal may sometimes be performed on the basis of the technical portion of the proposal alone. Cost information will be deliberately denied to the technical evaluator to prevent this from influencing his decision. He is asked to rate a proposal into two broad classes, acceptable and unacceptable. He is then required to state reasons for his decision. Only then may cost data be brought into the picture. On the other hand, the proposal may be evaluated taking into consideration both technical and cost factors at the same time.

Upon completion of the evaluation, the submitter will be informed as to whether the Government is interested in supporting his proposal, or his proposal will be rejected. Sometimes the technical results of the evaluation will be provided, other times only a statement of "no interest" or "lack of potential benefit to our research and development programs" may constitute the rejection. In any event, the length of the reply does not constitute the measure of the evaluation. Every proposal is carefully and thoroughly evaluated by highly competent personnel in the field or fields involved in the proposal.

Where To Submit a Proposal in the Army

Proposals should be submitted, in triplicate, to the appropriate major subordinate command or agency of the Army Materiel Command (AMC) concerned with the work proposed; or, if this cannot be readily determined, to:

Commanding General
U.S. Army Materiel Command
Attn: AMCRD-SS-P
Washington, D.C. 20315

The Army Materiel Command has eight separate major subordinate commands. They are:

U.S. Army Aviation Materiel Command
St. Louis, Mo. 63166

U.S. Army Electronics Command-
Fort Monmouth, N.J. 07703

U.S. Army Missile Command
Huntsville, Ala. 35809

U.S. Army Mobility Equipment Command
St. Louis, Mo. 63166

U.S. Army Munitions Command
Dover, N.J. 07801

U.S. Army Tank-Automotive Command
Warren, Mich. 48090

U.S. Army Test and Evaluation Command.
Aberdeen, Md. 21005

U.S. Army Weapons Command
Rock Island, Ill. 61202

(Continued on page 17)

FROM THE SPEAKERS ROSTRUM

Exploiting Marine Mineral Resources—Problems of National Security and Jurisdiction

Address by Hon. Robert A. Frosch, Asst. Secretary of the Navy (Research & Development), at the Naval War College Conference on Mineral Resources of the World Oceans, July 12, 1968.

The various leaflets and letters announcing this symposium have listed "Matters of Military Concern" as the topic of my address. Considering the far-reaching complexities involved with the oceans' resources today and, at the same time, the vastness of the military's oceanic interests and responsibilities, I think it is important that we word the topic with greater precision to read "Matters of Military Concern Connected with Marine Mineral Resources."

The scope and nature of civil activities in the oceans and on the seabeds is increasing rapidly, and current technological developments indicate that exploitative activities on and beyond the continental shelves will continue to grow in both magnitude and variety. Such growth will logically result in various types of physical plants for extractive or processing purposes, transportation and life support systems, power generation plants, and other appurtenances of marine mineral industrial activity.

At the same time, international political interest in the oceans and seabeds has been aroused in recent years by the 1958 and 1960 United Nations Conferences on the Law of the Sea, by the growing international exploitation of fisheries, by the seaward steps of the petroleum industry, and by growing interest in the exploitation of marine mineral resources. This is also demonstrated, in part, by the current activities of the United Nations Ad Hoc Committee on the Seabeds, and by suggestions from various quarters, both at home and abroad, to the effect that man is churning the oceans into legal chaos, and consequently sweeping new international legal action is required to define a law of the seabed. We can expect this interest to increase rather than diminish in the future.

Both the technological and the political developments relating to marine mineral resources are of professional concern to the military: first, because they will give rise to a new order of military requirements along with new problems of accommodation between military and other uses; and second, because they have the potential for changing the traditional nature of the freedom of the seas and, in so doing, would have major implications for military aspects of the nation's security.

Accordingly, I would like to address three topics:

- Requirements for military capability arising in connection with the exploitation of the mineral resources of the oceans.
- Problems of accommodation between military and non-military uses arising from the exploitation.
- Problems in legal regimes (including arms control regimes) triggered, at least in part, by the problems and prospects of exploitation.

In discussing these subjects I will consider them from the point of view of one responsible for military uses of the oceans and of military security, giving at best only passing notice to other aspects of overall national security, of which military security is only one ingredient. Many other aspects of these problems are being covered elsewhere in this symposium.

This is an exceedingly complex subject, and many diverse views are being considered. The statements made herein should be considered as my thoughts on the subject and should not necessarily be interpreted as representing official governmental positions.

As a foundation for my discussion, I will describe some of the principal aspects of the involvement of the military with the sea.

Many military uses of the ocean stem from general uses of the ocean. Where man goes his problems go, where man's problems go his conflicts go, and where man's conflicts go his military forces follow. I note parenthetically that it sometimes seems to be implicitly assumed that removal of the military forces somehow removes the conflicts and the problems, but I see no reason to believe this, except in the occasional case where the presence of the military force makes the problem or the conflict. In any case we may call this the first class of military uses of the oceans, general use of the oceans.

A second class of military uses of the ocean stem from special properties of the ocean, including the fact that there is no sovereignty there, the fact that the sea provides special kinds of concealment, and the fact that it is an arena generally empty of human population concentrations.

A third class of military uses stems from uses generated in response to the military uses called out by the first two classes, and by those in the third class. (I fold the third class into itself to avoid a useless sequence.)

Within these categories lie a wide range of present and possible future military activities, most of which can be influenced by changes in national or international views of jurisdiction, or by access to and jurisdiction, or by access to and use of the ocean floors and seabeds; changes that could result from international political action related primarily to the world's marine mineral resources.

Included in the phrase "general use of the oceans" are the traditional, time-honored uses of the world's oceans to move military forces to or against foreign shores and to prevent such movements against our own shores. General use includes the protection of U.S. shipping, fishing, and other property at sea; it includes the entire spectrum of naval activity—surface, subsurface, and in the air above the seas. Such use is the essence of naval power. If we are not careful in how we tamper with the factors that permit it, we may harm our national interest.

In the second category, "military uses generated by special properties of the oceans," we include those uses which take advantage of the mobility and concealment made possible by the marine environment. The flexible and highly invulnerable Polaris deterrence system is a prime example of such use, as the follow-on Poseidon system will be.

The third category, "military uses generated by other military and by civil uses," includes such activities as anti-submarine warfare; air defense of fleets, forces, and merchant shipping; submarine warfare; mine warfare; search, rescue, and salvage missions; and oceanographic forecasting. Within this category, there are several possible military uses of the continental shelves and seabeds. Saturation diving techniques, for example, together with future submersibles, sensors and tools may permit greater military use of the ocean floor. Such use could well be threatened or limited by changes in the legal regime for the deep oceans.

As the nation's civil activities in the oceans and on the seabeds increase, the Navy can expect a considerable increase in tasks and requirements. At present, for example, a world-wide civil and military salvage network is in operation under Navy management and control.

By law (Public Law 513 of the 80th Congress and 10 U.S. Code 7361, *et. seq.*) and policy (OPNAV Instruction 4740.2B), while the Navy does not commit itself to maintain salvage facilities in excess of Navy requirements, the Secretary of the Navy can and does provide necessary salvage facilities for public and private vessels upon suitable terms. In effect, the Navy is the principal salvage agency of the Federal Government, working with Navy vessels and contract services to fill gaps in normal commercial salvage capabilities where necessary. This work is carried out, world-wide, by the Supervisor of Salvage working under the Naval Ship Systems Command. In addition, the Navy assists the Coast Guard in carrying out its statutory responsibility for the safety of life and property at sea by providing additional men and ships when required. In fact, the Navy participates in the traditional law of the sea: give help where help is needed.

Requirements Arising from Exploitation

The growing numbers of ships, submersibles and divers, operating from the near-shore to the deep-ocean environment, will inevitably require more rescue and salvage operations. For example, as more and more divers experiment in the months and years to come with saturated diving, there may be an increased need for man-rated hyperbaric facilities just to handle emergencies resulting from such diving. Also, we can expect that increasing requirements for rescue of personnel and salvage of material will be the inevitable result of growth in the fishing and maritime industries. The possible necessity of expanding the Navy's salvage network, and increasing its capabilities to deal with such growing requirements is certainly worthy of the most serious consideration.

In this connection, there is a growing requirement for safety certification of commercial and recreational submersibles. The Coast Guard has the responsibility for general certification and for the definition of standards of safety, etc., but, because the Navy has the greatest capability in the Federal Government in the technology of submersibles, we are working with the Coast Guard, both in the initial stages of standards preparation and to assist them in acquiring the necessary skills and capabilities to carry on the work themselves in the long term. I think it worth mentioning at this point that there is a long tradition of cooperation between Navy and Coast Guard in carrying out our respective peacetime missions, in addition, of course, to our close association in war time.

Navy certification of commercial or private submersibles is only in connection with their use by the Navy or its personnel.

As mineral exploration and exploitation activities, be they for sulphur, petroleum products, or heavy metals, increase and extend seaward, associated problems will increase not only for rescue and salvage work, but also for protection and policing of U.S. nationals carrying out commercial activities on the surface, in the water column, and on the seabed.

While the United States, of course, looks first to diplomatic or peaceful legal resolution of any problem of the protection of its citizens, when engaged in lawful activity on the high seas, against arbitrary interference by other powers, or by piracy, this has to be backed up by a military potential. This requirement may be expected to extend to similar lawful activity in the water column or on the seabed. Such protection would, again, presumably be a responsibility shared between Navy and Coast Guard, depending somewhat on the nature and location of the problem. Clearly we will need the military capability to operate everywhere the technology can go to exploit, if we are to fulfill this requirement.

These new and increasing challenges, relating to marine mineral resources activities, are functions for which the Navy and Coast Guard will accept responsibility as part of their overall missions. We should remember, however, that they are requirements that may demand an expanded effort on the part of the Navy and Coast Guard in terms of manpower, operating forces, shore facilities, and funding.

Another factor of interest to the military, stemming from marine technological development, will be the effect, in terms of interference or hazards, that the growing number of offshore and deep-ocean platforms, structures, ships and related activities have on military operations in the marine environment. The Navy, for example, will have to be more and more on guard against physical interference from moving objects; in turn, it will have to be continuously aware of locations at which there are on-going marine resource exploitation activities. A partial list of expanding activities posing interference problems would include fishing, petroleum exploration, drilling, petroleum production operations, salvage work, recreational boating, merchant traffic, and oceanographic surveys being conducted by means of ships, buoys, free submersibles, towed submersibles, tethered submersibles, seabed vehicles, and seabed installations.

A recent review of the situation indicates that naval operations involving individual ship exercises have been most affected by (and presumably have most affected) non-military oceanic activities which have included fishing, merchant traffic, recreational boating, and ocean survey operations. To a lesser degree, amphibious, gunnery, and replenishment operations, anti-submarine warfare exercises, and air-sea rescue operations have been affected by the same kinds of interference. Minesweeping and mine-hunting experimental work and exercises have experienced interference from recreational boating, fishing activities, oil drilling operations, and the establishment of artificial reefs.

While non-military interferences have increased in recent years, they have not, by and large, created serious problems for the Navy, and we hope that naval operations have not created serious problems for others. In the great majority of reported interference incidents, the Navy ships involved have either accommodated or adjusted to the non-military activity. The Navy has, for example, modified operations sufficiently to permit their completion with minimum interruption; in many cases it has solved the interference problem by giving more sea room to the non-military activity. It has largely accommodated the oil industry in this fashion by moving seaward, away from drilling and production operations.

The Navy is a firm believer in the concept of accommodation of many different users, a concept which is, of course, fundamental to the present law of the sea. For example, the Convention on the Continental Shelf authorizes coastal nations to erect installations on their shelves to explore and exploit seabed and subsoil resources but, at the same time, stipulates that this exercise of authority must not result in any unjustifiable interference with navigation, fishing, or conservation of living resources. The Gulf of Mexico offers an excellent example of the successful application of this concept in an area of high-intensity marine activity.

In summary, while this "crowding" of the oceans is of concern to the military, it does not post an insurmountable problem. As we have for many decades, suitable arrangements will be made for multiple users using the historic principle of the international law of the sea as codified in Article 2 of the 1958 Geneva Convention on Law of the Sea.

One further point to keep in mind, however, is that it is not necessarily easy to move a military use of an area. The costs may be high, perhaps so high as to be prohibitive, particularly when extensive on- and offshore facilities such as ranges are involved. This suggests the need for careful long-range planning by all potential users of an ocean area so that future conflict may be minimized.

Problems Arising from Possible Legal Regimes

Present-day naval operations are conducted in an international legal regime in which the principle of freedom of the high seas prevails: All nations have an equal right to use the high seas, one nation may not unreasonably interfere with the lawful use of the high seas by another, and each nation has jurisdiction over activities conducted on the high seas under its flag or nationality.

Under the present regime, national jurisdiction over exploration and exploitation of the seabed is limited to a relatively narrow offshore area adjacent to the coastal nation and short of the deep-ocean seabed. In general terms, the law of capture applies to marine mineral resources, with title to the resources vesting only once they have been dredged, mined, or otherwise removed. The explorer and exploiter are both protected and limited by the requirement that each user have reasonable regard for the activities of other users. The user's nation can control his marine operations.

Changes to the international law of the sea will undoubtedly be required, as changes have been required and made in the past. In all likelihood, it will be essential, for example, for nations to agree on a precise outer limit for the extension of national jurisdiction under the regime of the continental shelf. Nations may also ultimately need to resolve conflict-of-use problems on the seabed and subsoil of the deep oceans. As indicated by my earlier comments, the problem of such conflicting use on the high seas is not a new problem. In the past, as specific problems have arisen, specific solutions under international law have been devised to provide for an accommodation of interests. Lying behind these specific rules is the general rule of international law that one use of the high seas may not unreasonably interfere with other lawful uses.

Any number of suggested new regimes for the world's seabeds, their exploitation, and their ownership are being advanced, most involving either greater restrictions or greater international involvement than does the present regime.

Under the terms of a Flag State Regime, for example, a nation would have exclusive jurisdiction over a vessel flying its flag, and it would have responsibility with regard to what those individuals operating under its flag could lawfully do in light of the rights of other nations. The nation of the marine minerals explorer or exploiter would have a protective interest in the resources to be exploited within a reasonable area, although national sovereignty over areas of the deep-ocean seabed would be prohibited.

The Median Line Regime would have the coastal nations divide the entire oceans, seabeds and subsoil among them on the basis of median lines equidistant from the nearest land. In its ocean area, the shore state would control right of access, prescription and appropriation.

Alternatively, the International Registry proposal would have the establishment of an International Registry Agency which would, for a fee, register flag state claims. The agency would presumably exercise some authority regarding competing claims, thus validating certain flag state claims.

Going one step further, the proposed regime of a Limited International Authority would establish an international agency with limited rights to lease the seabed and prescribe regulations, but no general ownership rights.

Finally, a regime of Complete Internationalization would include the establishment of an international agency which would own the seabed, the subsoil, and their resources with authority analogous to sovereignty over marine mineral resources.

I would like now to point out another interim approach toward clarification of principles related to different seabed users. I refer to the Seabed Principles introduced by the United States at last month's meeting of the United Nations Ad Hoc Committee. From the military viewpoint, these principles, intended to guide nations and their nationals in the exploration and use of the deep-ocean floor and its subsoil, offer a most useful approach to seabed problems.

They do not imply a "freeze" on marine mineral resources exploration and exploitation activities while specific seabed rules evolve from the practice of seabed users or are negotiated in the abstract.

Another aspect of the interaction of resource exploitation and military uses involves the problem of arms control. Mineral resources and arms control do not necessarily travel hand in hand; the two are often linked, however, in proposed new regimes for the marine environment. As any arms control agreements relating to the continental shelves and deep ocean floors are matters of critical concern to those responsible for the nation's security, a brief comment on seabed arms control proposals being advanced, either as part of the proposed seabed regimes or otherwise, is in order.

At present, subject to the provisions of the United Nations Charter, there are few restrictions on defensive military deployment and activities in the oceans. Coastal state consent is required for territorial sea and, to some extent, continental shelf operations. Additionally, there are the normal constraints of the rules of war (including the Geneva Conventions); the restraint against unreasonable interference with other users; and the limited test ban treaty which prohibits underwater, atmospheric, and space nuclear tests. The various arms control proposals which have been discussed might, among other things, prohibit the stationing or affixing of nuclear weapons on the seabed, restrict the seabeds of the world for peaceful uses only, or demilitarize them completely.

With regard to these proposals, the point I wish to make is that several nations already have a capability to use the oceans and seabeds for military purposes. This situation dictates that any international effort to limit military uses of the continental shelves and deep-ocean floors must be subject to truly effective controls and measures for verification: the ascertainment of treaty violations on the part of other nations.

Military View on Proposed Seabed Regimes

In all of the marine mineral activity, both political and technological, underway today considerable attention is being focused on the need to be able to distinguish more clearly between the continental shelf and the deep-ocean bed. It is significant to note that this distinction is not of great importance to the military as it views the proposed regimes for seabed mineral exploitation and arms control. The military seldom has need to make such a distinction in its oceanic operations, being concerned instead with the extent of national jurisdiction that is the breadth of the territorial sea. The Navy is concerned, however, that proposed seabed regimes might eventually result in claims and restrictions on the use of the superadjacent waters and, secondly, might lead to information and reporting requirements that would pose unnecessary problems for military operations. While the Navy is free to operate on the high seas, and while it generally has the right of innocent passage through foreign territorial waters, it must gain the consent of the coastal state if it wishes to operate in foreign territorial waters.

Hon. Robert A. Frosch

The military view has been, and continues to be, that any extension of territorial seas should be kept to a minimum, sovereignty over the continental shelves (whatever their seaward boundary) should be closely limited, and the air space above the high seas should remain free.

The security of the United States rests in part on the Navy's use of the high seas, and we would like to see the use and legal coverage of the high seas develop in such a way as not to impede this portion of our security unnecessarily. The military has neither the desire nor the intention to impede the full development of marine mineral resources. Rather we see fuller exploitation as a natural and positive development, but one which will require new capabilities for policing and protection and, thus, poses new military problems. We hope that the development of the requisite law will proceed together with the development of exploitation and its technology, so that the law will not impede the development nor channel it in directions that later turn out to be unwise or difficult to protect or police.

I might add that the Navy has another interest regarding marine mineral exploration and exploitation activities. That is, within the limits of national security, to make available from its ocean engineering program all the technological and scientific information possible for use by marine mineral explorers and exploiters—information ranging from bathymetric data to the technical information required for submarines and submersibles. The Navy is most anxious to cooperate with the whole public and private community in developing a national program for the oceans with the objective of enhancing national security in its largest sense.

ABOUT PEOPLE

DEPARTMENT OF DEFENSE

Ernest Louis Massad has been sworn in as Dep. Asst. Secretary of Defense (Manpower and Reserve Affairs), a new position established by the Reserve Forces Bill of Rights and Vitalization Act of 1967.

David Charles Stewart has been sworn in as Dep. Asst. Secretary of Defense (Manpower and Reserve Affairs) for Special Manpower Programs.

Maj. Gen. Robert H. Warren, USAF, has been nominated by President Johnson for promotion to lieutenant general and assignment as Dir. of Military Assistance, Office of Asst. Secretary of Defense (International Security Affairs).

Brig. Gen. Charles H. Phipps, USA, has been named Commander, Defense Contract Administration Services Region, New York.

Capt. Tazewell T. Shepard Jr., (rear admiral selectee), has been assigned as Dir., East Asia and Pacific Region, Office of Asst. Secretary of Defense (International Security Affairs).

Defense Industry Bulletin Gets New Editor

Lt. Cdr. E. Wayne Bradford, USNR, editor of the *Defense Industry Bulletin* since the first issue in January 1965, has retired from the Navy, effective Sept. 1, 1968. He has been succeeded as editor by **Lt. Col. Matthew W. Irvin,** USA.

Lt. Cdr. Bradford was responsible for all aspects of the *Bulletin* since its beginning. In its three-year history, the magazine has grown from a circulation of 1,100 defense contractor subscribers to more than 20,000.

Col. Irvin comes to the Office of Assistant Secretary of Defense (Public Affairs) from Vietnam, where he was a public affairs officer on the Military Advisory Command Vietnam (MACV) staff. Prior to his Vietnam assignment, he was associate editor of the *Army Digest.*

DEPARTMENT OF THE ARMY

Lt. Gen. Charles W. G. Rich has been designated Dep. Commanding General, U.S. Continental Army Command. **Lt. Gen. Frederick C. Weyland** relieves Gen. Rich as Chief of Reserve Components, Department of the Army.

Maj. Gen. Frank M. Izenour has assumed command of the U.S. Army Test and Evaluation Command, Aberdeen Proving Ground, Md. He succeeds **Maj. Gen. Leland G. Cagwin.**

Brig. Gen. George Heacock McBride is the new Dep. Commander at the Army Aviation Materiel Command, St. Louis, Mo.

Col. Quellen D. Boller has assumed duties as Dir., General Equipment Testing Directorate, Army Test and Evaluation Command, Aberdeen Proving Ground, Md.

Col. Jack G. Hines has taken command of the Army Strategic Communications Command - CONUS, Suitland, Md.

The Army Missile Command, Redstone Arsenal, Huntsville, Ala., has two new Project Managers. They are: **Lt. Col. Robert W. Huntzinger,** TOW anti-tank weapon system, and **Lt. Col. Robert J. Proudfoot,** Shillelagh missile system.

DEPARTMENT OF THE NAVY

RAdm. Frank L. Johnson has taken the helm as Commandant, Thirteenth Naval District, headquartered at Seattle, Wash. He comes to the new post from duty as Commander, U.S. Naval Forces, Japan.

RAdm. Sam H. Moore has been assigned duty as Commander, Military Sea Transportation Service, Far East, with headquarters in Yokohama, Japan.

RAdm. Lawrence R. Geis has been named Chief of Information, U. S. Navy. He succeeds **RAdm. Henry L. Miller** who has been assigned as Commander, Naval Air Test Center, Patuxent River, Md.

RAdm. Harry C. Mason is the new Dep. Commander, Engineering Directorate, Naval Ship Systems Command. **Capt. Burton H. Andrews,** (rear admiral selectee), relieves Adm. Mason as Vice Commander, Naval Electronic Systems Command.

Capt. John D. Chase has been named Commander, Naval Weapons Laboratory, Dahlgren, Va.

Capt. Wallace R. Dowd Jr., (rear admiral selectee), has been assigned as Commanding Officer, Naval Supply Center, Charleston, S.C.

Capt. William P. Holden is the Navy's new Project Manager for the Naval Inshore Warfare Project, Naval Material Command.

DEPARTMENT OF THE AIR FORCE

The Senate has confirmed the reappointment of **Gen. John P. McConnell** as Chief of Staff, USAF, for a period of one year beginning Aug. 1, 1968.

The following assignments have been made in the Air Force Systems Command: **Brig. Gen. Guy M. Townsend,** Dep. for Systems Management, Aeronautical Systems Div., Wright-Patterson AFB, Ohio; **Col. Benjamin N. Bellis,** Dep. for Reconnaissance, Aeronautical Systems Div.; **Col. Robert M. Horning,** Dir. of Materiel, Air Force Flight Test Center, Edwards AFB, Calif.; **Col. Floyd H. Trogdon,** Vice Commander, Electronic Systems Div., L. G. Hanscom Field, Mass.; **Col. Robert E. Walters,** Chief Electronics Test Div., Air Proving Ground Center, Eglin AFB, Fla.; **Col. Hugh Wynne,** Dir., Atlas/Minuteman Program Office, Space and Missile Systems Organization, Los Angeles, Calif.; and **Col. Joseph F. Marling,** Chief, Combat Systems Program Office, Aeronautical Systems Div.

New assignments at Air Force Logistics Command headquarters, Wright-Patterson AFB, Ohio, include: **Col. Billie J. McGarvey,** Dep. Civil Engineer; **Col. Albert M. Nemetz,** Dir., Resource Planning; and **Col. Robert E. Hails,** Asst. Dep Chief of Staff, (Maintenance Engineering).

The Role of Training Devices in Developing Military Skills

Captain Jack N. Miller, USN

The creation of the Naval Training Device Center 26 years ago marked the beginning of a new era in the training of military personnel for combat. Before that time, a naval aviator in training first came in contact with the controls of a naval aircraft when he strapped himself in the cockpit. Naval officers and men learned to operate a submarine by going out to sea and making dives. Navy gunners learned how to hit enemy targets by firing live ammunition. Training was slow, it used equipment that might be needed for operations, and the element of danger was always present.

Today every fighting man of any of the three Services has most likely undergone realistic combat training through the use of simulators or synthetic techniques pioneered by the center. Now, when a man steps into an aircraft cockpit for the first time or makes his first dive in a submarine, he is in familiar surroundings and operates controls he has already handled. The time and cost of training have been sharply reduced. Even more important, a man learning through the medium of a simulator does so without danger to himself or his fellow crew members, and without the possibility of accident with or damage to expensive equipment.

The use of training devices to prepare the fighting man in his many skills is not new. Training devices or simulators have been used for centuries. In the age of battlements, soldiers were trained on mockups prior to the attack on an actual fortress. In the time of knights, jousting skills were taught with a "teaching machine" called a quintain. If the trainee struck this trainer squarely in the middle of the shield, it would fall over. If the knight in training struck the quintain incorrectly, it would swing around and hit him.

For over a quarter of a century the Naval Training Device Center, with headquarters now at Orlando, Fla., has played a major role in the research, development, production, and maintenance of training devices and equipment for all branches of the Service. In addition to our own Army, Navy, Air Force, and Marine Corps programs, the center has been active in the Military Assistance Program, providing simulation equipment to friendly foreign nations. To a lesser extent, the center also provides training devices to civilian agencies of our Government.

Captain Jack N. Miller, USN, is Commander, Naval Training Device Center, Orlando, Fla. A naval aviator for 25 years, his previous assignment was Dir., Astronautics Div., Naval Air Systems Command. He holds a B.S. degree in chemical engineering from the University of Missouri, and M. S. degrees in aeronautics from the Calfornia Institute of Technology and aeronautical engineering from the University of Michigan.

Just what is a training simulator (training device)? A simulator is a device which enables the trainee to operate or perform under conditions likely to occur in actual environment. A simulator may range in complexity from a simple, hand-held device costing a few cents to a multi-million dollar training complex utilizing digital computers and housed in an entire building.

Devices Simulate the Real Situation

Training simulators of today are meeting the challenge of advanced technology reflected in sophisticated weapon systems. The flight and tactics trainer duplicates the pilot's cockpit and weapon systems stations of the operational aircraft. The pilot and his crew see the same instruments found in the operational aircraft being simulated, and must respond to these simulated instrument readings on a real-time basis. Realism extends to the sound of tires as he makes his simulated landing. The land-locked submarine trainer realistically simulates diving techniques, complete with motion, and all of the complex tasks associated with the countdown of a Polaris missile.

It often requires a series of trainers to simulate fully an operational system. For example, the A-7A Corsair II is a single-place, light-attack, jet aircraft now in operation with the Fleet. Simulators which support pilot training are the Radar System Trainer (Device 15A18), the A-7A Cockpit Procedures Trainer (Device 2C15), and the A-7A Weapon System Trainer (Device 2F84), the principal device for pilot training. This trainer gives the pilot, in a simulated environment, all the procedures and techniques required to accomplish his assigned mission.

The device contains both flight and tactics (radar and electronic countermeasures) sections, which may be operated independently or in conjunction with each other so as to provide training in the complete weapon system. Instructions for the pilot in all phases, ranging from familiarization to full mission, can be provided by the simulator.

An instructor station is provided to control the conditions of training, introduce emergencies, and act as ground station for instrument navigation problems. A digital computer is utilized in the flight section, which will provide revision of the A-7A flight parameters as they are developed and/or modified.

The device is provided with a full-scale replica of the cockpit section of the aircraft with all control and instrument characteristics fully simulated. By the use of variable intensity lighting, varying conditions of daylight and clouds are simulated. Sounds associated with jet engine start, taxi, takeoff and flight are simulated by a system of audio oscillators and noise generators to provide aural sensations of flight.

The training simulation concept in support of the A-7A can apply not only to other aircraft, such as the A-6A, but also to other operational systems on the land, on the sea, and under the sea.

Due to technological advances, fleet anti-submarine warfare (ASW) weapon systems have become extremely sophisticated and complex. In order to use this equipment effectively and efficiently, fleet personnel must be thoroughly trained and skilled as a team in surface ship ASW attack tactics. In recognition of this problem, the Navy, through the Naval Training Device Center, instituted a program to develop an electronic, digital computer-controlled Surface Ship ASW Attack Trainer (Device 14A2).

The device duplicates the physical configuration of major operational compartments and equipments of surface ship ASW attack weapons, and simulates their functional operation and responses such as target detection, fire control solution, and weapon launching and tracking.

Trainer Helps Plan Tactics

Device 14A2 provides for instruction in equipment operating procedures, develops personnel proficiency, and indoctrinates personnel in ASW procedures and in the evaluation of tactical situations. The trainer is also used in developing and planning advanced naval defense tactics. Typical training problems include target acquisition, tracking, weapon firing, and hit evaluation.

In this same category, the ASW Coordinated Tactics Trainer (Device 14A6) permits the Navy to give realistic, coordinated tactics training to ASW task force crews without the expense involved in actually taking a fleet of ships and aircraft to sea. It can train up to 250 decision-making personnel of an entire ASW task group in the missions they must perform when they are engaged in coordinated intertype tactics. The trainer provides shore-based training with a degree of realism that approaches sea maneuvers.

Device 14A6 consists of several hundred major electronic units housed in a 40,000-square foot building. There are 36 individual rooms that simulate command centers for the various mobile ASW units. Eighteen of these centers are configured to simulate destroyers or submarines. One center simulates an ASW carrier and one simulates a flag plot. Sixteen command centers are available for use as land-based patrol craft, carrier-based ASW aircraft, or ASW helicopters.

The trainees operate these simulated vehicles in an ocean of 360,000 square miles against four instructor-controlled target submarines or up to six manned submarine units, designated as target submarines. All command centers have helm units, plotting facilities, internal and external communication equipment, appropriate sensor capability, and display equipment.

Still another multi-million dollar device, the Combat Information Center Tactics Trainer (Device 15F6), is used in training crews in tactical situations encountered by various ships such as ASW destroyers, cruisers, and guided missile destroyers. It can present to the trainees a total of 128 imaginary targets over a gameboard area of 127,000 square miles.

The role of training in the Navy is steadily expanding. The equipment used for future training is often as technologically sophisticated as the operational equipment itself. The trend is toward large training complexes, such as the fleet Anti-Submarine Warfare School in San Diego. In the next decade, a single master

Students in a Combat Information Center Tactics Trainer conduct simulated anti-submarine warfare over a 127,000 square mile gameboard area.

computer at a central location may be used to provide simulation at many different locations simultaneously.

Meeting Needs for New Devices

How does the Naval Training Device Center meet the requirements of the Fleet and user commands? A rather complicated technical development cycle, using many planning and programming phrases with their associated acronyms, is involved. Reduced to its simplest terms, the Chief of Naval Operations expresses a fleet training requirement, and the requirement is translated into a project by the cognizant Bureau or Systems Command. The Naval Training Device Center then reacts by developing a concept based on the latest training device technology resulting from government and industry laboratory research. This concept is further developed by the center's technical staff and results in a performance specification which describes the proposed trainer. Based on this specificaton, contracts are awarded for the development and production of training devices. After contract award, engineering personnel review design and conduct subsystem and system tests. Support specialists insure that logistic support material and services accompany the device when it is introduced to the Fleet.

Recognizing industry's major role in the development of training devices, an annual Naval Training Device Center-Industry Conference was initiated in November 1966. The purpose of these conferences is to permit the center's representatives to meet with their counterparts in the simulation industry to openly and frankly discuss mutual problems relating to the procurement of training devices, and to exchange ideas for improving the state of the art. At the first two conferences, individuals gave presentations reflecting their opinion, not necessarily those of the agency or company, and the center has responded to suggestions from industry. One example was the decision to furnish industry with long-range procurement estimates. This suggestion became a fact in May 1967 when the center published, in *Commerce Business Daily*, its Long-Range Procurement Estimating. for Fiscal Year 1968, covering the air warfare and sea warfare programs. This step forward allowed the simulation industry to plan in advance for its possible participation in procurements. While not an Invitation for Bid, this information provided industry with a look at the entire spectrum of planned training devices for all warfare areas of air and sea.

The Technical Director of the Naval Training Device Center selects topics and themes for the annual industry conferences that are of mutual interest to both the center and the simulation industry. For example, the first two conferences included such topics as:

- Predicting Cost and Lead Time.
- 3-M Maintenance Data System and Augmented Support.
- Trends in Digital Simulation.
- Reliability of One-of-a-Kind Training Systems.
- Learning, Retention, and Transfer.
- Optical Systems Limitations for Visual Displays.

This wide range of subjects has allowed the Navy and industry to express all facets of the simulation profession.

The future of simulation for the Defense Department, the Naval Training Device Center, and industry is very challenging. Many aspects of training are still primitive in the use of technology. However, training in the Navy is receiving more attention today than in any previous period of time. With the advanced state of operational equipment, the quality and effectiveness of what is taught and what is learned is more important than ever before. Thus, the center is looking at individual instruction. It is believed that any technique which can considerably accelerate the learning process will have a great impact on our military training programs.

The need exists and must be satisfied by imagination, ingenuity, and technical skill.

Army Unsolicited Proposals

(*Continued from page 9*)

Each of these commands has numerous subcommands, laboratories, installations and activities under its jurisdiction.

There are also separate activities and laboratories, listed below, reporting directly to AMC headquarters:

Army Ballistics Research Laboratories
Aberdeen, Md. 21005

Army Materials and Mechanics Research Center
Watertown, Mass. 02172

Coating and Chemical Laboratories
Aberdeen, Md. 21005

Cold Region Research and Engineering
Hanover, N.H. 03755.

Harry Diamond Laboratories
Washington, D.C. 20438

Human Engineering Laboratory
Aberdeen, Md. 21005

Natick Laboratories
Natick, Mass. 01762

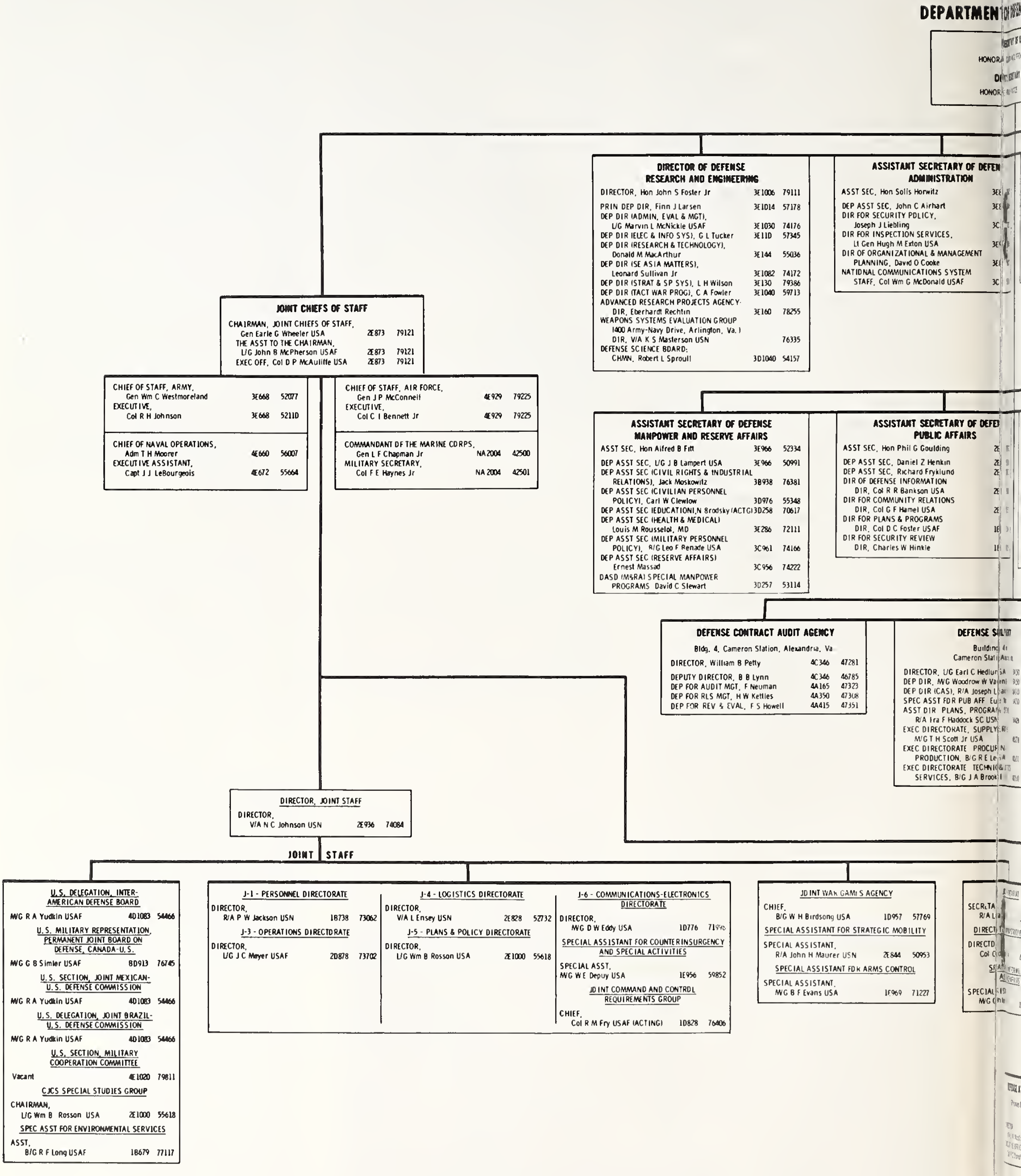
Satellite Communications Agency
Fort Monmouth, N.J. 07703

Nuclear Defense Laboratory
Edgewood, Md. 21010

The names of the major commands or separate activities are synonymous with the commodity or commodities or function for which they are responsible with the exception of the Mobility Command, the Harry Diamond Laboratories, and the Natick Laboratories.

- The Mobility Equipment Command is responsible for aeronautical equipment, aerial delivery equipment, surface transportation, power generation, construction of surface barrier and bridging equipment, general purpose vehicles, and general support equipment and supplies.
- The Harry Diamond Laboratories are responsible for basic and applied research in the fields of radiating or influence fuzing, time fuzing (electrical, electronic, decay, or fluid), and selected command fuzing for target detection, signature analysis, and the target intercept phase of terminal guidance.
- The Natick Laboratories are responsible for research and development in the physical, biological and earth sciences, and engineering to meet military requirements in the commodity areas of textiles, clothing, body armor, footwear, organic materials, insecticides, fungicides, subsistence, containers, POL handling and dispensing equipment, materials handling equipment, food services equipment, field support equipment, tentage and equipage, and air delivery equipment.

DEPARTMEN



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DEP DIR (ELEC & INFO SYS), G L Tucker	3E110	57345
DEP DIR (RESEARCH & TECHNOLOGY), Donald M MacArthur	3E144	55036
DEP DIR (SE ASIA MATTERS), Leonard Sullivan Jr	3E1082	74172
DEP DIR (STRAT & SP SYS), L H Wilson	3E130	79386
DEP DIR (TACT WAR PROG), C A Fowler	3E1040	59713
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IG, M/G Wm A Enemark	Y&D Ann 1B3	52182

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ASN (M&RA), Hon Randolph S Driver		4E788	73913
ASN (R&D), Hon Robert A Frosch		4E736	56315
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VCNO, Adm B A Clarey		4E644	78347
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DCNO (DEV), R/A E A Ruckner		5C710	75533
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DCNO (M&NR), V/A C K Duncan		4E474	41101
DCNO (P&P), V/A F J Blouin		4E588	53707
ACNO (COMM/DNC), R/A F J Fitzpatrick		4C677	57284
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CDR, NAVSHIPSYSCOM, R/A Edward J Fahy	MN	3046	62058
CDR, NAVORDSYSCOM, R/A Arthur R Gralla	MunB	2004	68033
CDR, NAVSUPSYSCOM, R/A B H Bieri Jr	MN	0026	63411
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ASAF (FM), Hon Thomas H Nielsen		4E978	72302
ASAF (M&RA), Hon J William Doolittle		4E1000	56383
THE GENERAL COUNSEL, John M Steadman		4E965	70941
DIR, INFO, M/G William C Garland		4D922	76061
DIR, SPACE SYSTEMS, B/G Russell A Berg		4C1000	78675
VICE DIR, MOL PROG OFF, M/G James T Stewart		5D227	50961
CHIEF OF STAFF, AIR FORCE, Gen John P McConnell		4E929	79225
VICE CHIEF OF STAFF, Gen John D Ryan		4E936	57911
DCS/R&D, L/G Joseph R Holzapple		4E334	77151
DCS/PER, L/G John W Carpenter III		4E194	71409
DCS/SYS & LOG, L/G Robert G Ruegg		4E262	53153
DCS/P&O, L/G Glen W Martin		4E1020	79991
COMPTROLLER, L/G Theodore R Milton		4E126	74774
DCS/P&R, L/G L D Clay Jr		4E1006	55226
INS GEN, L/G Joseph H Moore		4E1076	76733
SURGEON GEN, L/G Kenneth E Pletcher	T-8	2718	69315
USAF SCIENTIFIC ADV BD, H G Stever		5D1014	74811

CRETARIAT

	2E935	72706

MINISTRATIVE SERVICES

SA	2E949	74987

TANT FOR MILITARY NCE AFFAIRS

	1E843	75225

* Washington personnel only

DEFENSE ATOMIC SUPPORT AGENCY

Thomas Bldg., 2020-14th St., N.
Arlington, Va.

RECTOR, V/A L M Mustin USN	780	45617
ECUTIVE OFFICER, Col P C Donohoe USA	780	45692

DEFENSE COMMUNICATIONS AGENCY

(Bldg. 12, Naval Service Center, 8th and
South Court House Road, Arlington, Va.)

DIRECTOR, L/G Richard P Klocko USAF	4225	43155
VICE DIRECTOR, R/A Robert H Weeks USN	4130	45223
EXECUTIVE OFFICER, L/C J J Fiederer USAF	4136	43466

DEFENSE INTELLIGENCE AGENCY

DIRECTOR, L/G J F Carroll USAF	3E256	57353
DEPUTY DIRECTOR, V/A Vernon L Lowrance	3E258	75128
EXEC, Col H G Creyts USAF	3E258	78844

MEETINGS AND SYMPOSIA

SEPTEMBER

Tenth Annual Meeting of the **Military Testing Association**, Sept. 16–20, at San Antonio, Tex. Co-sponsors: Military Testing Association and Aerospace Medical Div. Personnel Research Laboratory. Contact: Mr. Fotis, Aerospace Medical Div., Personnel Research Laboratory, Lackland AFB, Tex. 78236, Phone (512) 674–3211, Ext. 3964.

Advanced Planning Briefing for Industry on Naval Ordnance/Missiles, Sept. 18–19, at Coronado, Calif. (Classified Secret.) Co-sponsors: Naval Material Command and the American Ordnance Association. Contact: Cdr. A. D. Sullivan, USN (Ret.), American Ordnance Association, 17th & H Streets, N.W., Washington, D.C. 20006, Phone (202) 347–7250.

Aerodynamic Deceleration Systems Conference, Sept. 23–25, at El Centro, Calif. Co-sponsors: Defense Department Joint Parachute Test Facility and the American Institute of Aeronautics and Astronautics. Contact: Earl C. Myers, 6511th Test Group Parachute, Naval Air Facility, El Centro, Calif. 92243, Phone (714) 352–6642.

American Society for **Testing Materials** Fall Meeting, Sept. 29–Oct. 4, at the Marriott Motor Hotel, Atlanta, Ga. Sponsors: American Society for Testing Materials, ARPA, National Bureau of Standards and NASA. Contact: Gordon Dalrymple, P.O. Box 13508, Atlanta, Ga. 30324, Phone (404) 873–2811.

OCTOBER

Government **Microcircuit Applications** Conference, Oct. 1–3, in Washington, D.C. (Classified Secret). Sponsors: Defense Department, NASA, Department of Commerce, National Bureau of Standards, Post Office Department and other government agencies. Contact: Mr. A.E. Cook, Office of Naval Research, Code 403C, Washington, D.C. 20360.

Silver Oxide **Batteries** Conference, Oct. 6–11, at Montreal, Canada. Co-sponsors: Air Force Aero Propulsion Laboratory and the Electrochemical Society. Contact: Mr. J. Cooper (APIP-2), Air Force Aero Propulsion Laboratory, Wright-Patterson AFB, Ohio 45433, Phone (513) 257–1110, Ext. 52804.

Seminar on **Progress and Opportunities in Military Exports**, Oct. 7, at Fairmont Hotel, San Francisco, Calif. Sponsor: Electronic Industries Assn. Contact: Mrs. Jane Davis, Requirements Committee, GPD, Electronic Industries Assn., 2001 Eye St., N. W., Washington, D. C., Phone (202) 659-2200.

Twelfth Annual **Organic Chemistry** Conference, Oct. 8–9, at Natick, Mass. Co-sponsors: Army Natick Laboratories and NAS-NRC Advisory Board on Military Personnel Supplies. Contact: Dr. L. Long Jr., Head, Organic Chemistry Group, PRL, U.S. Army Natick Laboratories, Natick, Mass. 01760, Phone (617) 653–1000 Ext. 2414.

Eighth Annual National Conference on **Environmental Effects on Aircraft and Propulsion Systems**, Oct. 8–10, at the Holiday Inn, Bordentown, N.J. Sponsor: Naval Air Propulsion Test Center. Contact: Mr. J. L. Palcza, Naval Air Propulsion Test Center, P.O. Box 176, Trenton, N.J. 08601, Phone (609) 882–1414, Ext. 317.,

Matrix **Methods in Structural Mechanics** Conference, Oct. 15–17, at Wright-Patterson AFB, Ohio. Co-sponsor: Air Force Flight Dynamics Laboratory and the Air Force Institute of Technology. Contact: Mr. Berke, Air Force Flight Dynamics Laboratory, (FDTR), Wright-Patterson AFB, Ohio 45433, Phone (513) 257–1110, Ext 55651.

Silicon Carbide Second International Meeting, Oct. 21–23, at Pennsylvania State University, University Park, Pa. Sponsors: Air Force Cambridge Research Laboratories, Pennsylvania State University and the Carborundum Co. Contact: Mr. C. E. Ryan, Air Force Cambridge Research Laboratories (CRWF), L. G. Hanscom Field, Mass. 01730, Phone (617) 274–6100, Ext. 2234.

Explosive Chemical Reactions Seminar, Oct. 21–23, at Durham, N.C. Sponsors: Army Research Office, Air Force Systems Command and the Naval Ordnance Laboratory. Contact: James Norman, Dir., Research-Technology Div., Army Research Office, Box CM, Duke Station, Durham, N.C. 27706, Phone (919) 286–2285, Ext. 22 or 44.

Engineering Aspects of Solidification Conference, Oct. 28–30, at Boston, Mass. Sponsors: Army Materials and Mechanics Research Center, American Society for Metals and American Foundrymen's Society. Contact: Dr. Paul J. Ahearn, Metallurgist, Army Materials and Mechanics Research Center, Watertown, Mass. 02172.

NOVEMBER

Third International Symposium on **Equatorial Aeronomy**, Nov. 2–10, at Ahmedabad, India. Sponsors: Office of Aerospace Research, Voice of America, Cambridge Research Laboratories and the Environmental Science Services Administration. Contact: Edwin J. Chernosky, Air Force Cambridge Research Laboratories, L.G. Hanscom Field, Mass. 01730, Phone (617) 274–6100, Ext. 3714.

Reliability Physics Symposium, Nov. 11–13, at Washington, D.C. Co-sponsors: IEEE and Rome Air Development Center. Contact: Mr. J. Vaccaro (EMERP), Rome Air Development Center, Griffiss AFB, N.Y. 13440, Phone (315) 330–2813.

Fifth Annual Symposium on **Science, Philosophy and Religion-Weapons Technology Conscience**, Nov. 13–15, at Kirtland AFB, N.M. Sponsor: Air Force Special Weapons Center. Contact: Lt. Col. Rizzo, Air Force Weapons Laboratory (WLRP), Kirtland AFB, N.M. 87117, Phone (505) 247–1711, Ext. 2320.

Prevention of **Microbiological Deterioration of Military Materiel** Meeting, Nov. 19–21, at Natick, Mass. Sponsor: Army Natick Laboratories. Contact: Arthur M. Kaplan, Head, Applied Microbiology Group, PRL, Army Natick Laboratories, Natick, Mass. 01760 Phone (617) 653–1000 Ext. 2206

DOD Approves New Communications Satellites

The Defense Department has announced its decision to proceed with a program to develop and acquire new, synchronous communications satellites and new terrestrial terminals as the next phase of its Defense Satellite Communications System (DSCS).

In testimony June 18, 1968, Dr. Gardiner L. Tucker, Deputy Director of Defense Research and Engineering (Electronics and Information Systems), informed the House of Representatives Military Operations Subcommittee of the Government Operations Committee of the decision, and stated that procurement of the new satellites and development of the new terminal types would be initiated in FY 1969.

It is expected that some of the new satellites will be placed in synchronous, equatorial orbit by late 1970 or early 1971.

The new satellites are to be equipped with both "earth coverage" and "narrow beam" antennae.

The earth coverage antenna will direct most of the satellite-radiated power toward the earth, providing relatively uniform coverage of that portion of the earth visible to the satellite.

The narrow beam antennae will focus their radiated energy into a very narrow beam which illuminates an area of 1,000-2,000 miles in diameter of the earth's surface. The narrow beam antennae will be steerable, so that the beams may be directed toward any selected area of the earth visible to the satellite.

This next phase of the Defense Satellite Communications System will provide many more channels for unique and vital military needs than are provided by the initial system.

The concentration of radiated power provided by the narrow beams will enable establishment of channels to transportable terminals having small antennae.

The commercial satellite and other common carrier communications systems will continue to be used for the transmission of a substantial load of routine traffic between the United States and overseas locations.

Establishment of the advanced system will be under the management of the Defense Communications Agency which will also exercise operational control over the system when it is established.

The Army will be responsible for development and acquisition of land terminals, the Navy will be in charge of development and acquisition of shipboard terminals, and the Air Force will have cognizance over the development, acquisition, launching and on-orbit control of the satellite system.

C-5A Makes 95-Minute Maiden Flight

The first Air Force Lockheed C-5A Galaxy lifts off the runway on its 95-minute maiden flight. The C-5A will meet the Air Force need to transport outsize cargo loads over intercontinental distances.

The 728,000-pound C-5A transport has a normal payload capacity of 110 tons, but under emergency conditions can lift 132 tons. The landing, like the takeoff, used only 5,000 feet of the 10,000 foot runway at Dobbins AFB, Ga.

BIBLIOGRAPHY

DEFENSE PROCUREMENT CIRCULARS

Distribution of Defense Procurement Circulars is made automatically by the U.S. Government Printing Office to subscribers of the Armed Services Procurement Regulation (ASPR).

Defense Procurement Circular No. 62, July 10, 1968. (1) Selected Items Relating to DOD Procurement. (2) Material Inspection and Receiving Report (MIRR) (DD Form 250 Series).

RESEARCH REPORTS

Organizations registered for service may obtain microfiche copies of these documents without charge from:

Defense Documentation Center
Cameron Station
Alexandria, Va. 22314

All organizations may purchase microfiche copies (65¢) or full-size copies ($3) of the documents (unless otherwise indicated) from:

Clearinghouse for Federal and Scientific Information
Department of Commerce
Springfield, Va. 22151

Stability of Tungsten and Thoria Dispersions in Beryllium. Aerospace Corp., El Segundo, Calif., for the Air Force, Dec. 1967. 18 p. Order No. AD–664 887.

Mechanical Deterioration of MgO by Water Vapor. Aerospace Corp., El Segundo, Calif., for the Air Force, Nov. 1967, 30 p. Order No. AD–664 890.

Development of Flexible Epoxy Resins and Coatings. Olin Mathieson Chemical Corp., New Haven, Conn., for the Navy, Feb. 1968, 37 p. Order No. AD–666 293.

Utility of Quantized Models of Fading for Error Analysis. Sperry Rand Research Center, Sudbury, Mass., for the Air Force, Jan. 1968, 46 p. Order No. AD–665 135.

The Estimation of Periodic Signals in Noise. General Electric Co., for the Navy, Feb. 1968, 33 p. Order No. AD–666 580.

Research in Energy Conversion, Northeastern University, for the Air Force, Sept. 1967, 657, p. Order No. AD–665 484.

Magnesium Round Dry Cell Batteries, Burgess Battery Co., Freeport, Ill., for the Army, Feb. 1968, 82 p. Order No. AD–666 184.

Separators for High-Rate, Non-Reserve Zinc-Silver Oxide Batteries. Douglas Aircraft Co., for the Army, Jan. 1968, 115 p. Order No. AD–665 631.

Sixth Status Report on Fuel Cells. Army Electronics Command, Fort Monmouth, N.J., May 1967, 181 p. Order No. AD–665 353.

On the Application of Small-Angle Electron Scattering to Plasma Diagnosis. Air Force Institute of Technology, March 1968, 23 p. Order No. AD–666 475.

GOVERNMENT PRINTING OFFICE PUBLICATIONS

These publications may be purchased at the prices indicated from:

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

U.S. Government Organization Manual 1968–69. Describes the creation and authority, organization, and functions of the agencies in the legislative, judicial and executive branches. Includes about 40 charts showing the organization of the Government, Senate, House of Representatives, the departments and the major independent agencies. GS 4.109:968. $2.

MILSTRIP, MILitary STandard Requisitioning and Issue Procedures, change 18, Feb. 1968. 126 p. D7.6/4: M59/ch.18. 65¢.

MILSCAP, MILitary Standard Contract Administration Procedures, Change 3, Feb. 1968. 59 p. D7.6/4: M59/3/ch.3. 35¢.

M60 Machinegun. Sets forth Marine Corps doctrine, techniques and procedures for employment of the machinegun, 7.62mm, M60. Discusses mechanical training, unit organization, marksmanship, and technique of fire. 1967. 158 p.il. D214.9/4:6–4A. $1.

Amphibian Vehicles, Ch. 1, Nov. 9, 1967. Contains Change 1 to fleet Marine Force Manual 9–2, Amphibian Vehicles. 1967. 97 p.il. D214. 9/4:0–2/ch.1. 60¢.

Air Force Scientific Research Bibliography, 1961, Vol. V. Contains abstracts of all technical reports, journal articles, books, symposium proceedings and monographs produced by the Air Force Office of Scientific Research during calendar year 1961. 1967. 1150 p. il. D301.45/ 19–2:700/v.5. Cloth $6.75.

Armed Services Procurement Regulation Supplement No. 4, Procedures for Submission of Applications to be Placed on Research and Development Bidders Mailing Lists. 1968. 68 p. D1.13/2–2:4. 35¢.

Industrial Security Manual for Safeguarding Classified Information, Change 1, May 1, 1968. Contains changes to Industrial Security Manual for Safeguarding Classified Information, DOD 5220.22–M, July 1, 1966. 106 p. il. D3.6/3:S2/966/ch.1. 55¢.

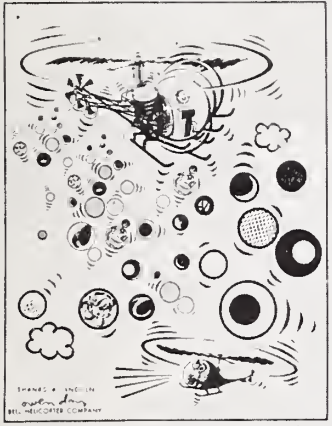
Clarification

An item on the DD Form 250, "Material Inspection and Receiving Report," (*Defense Industry Bulletin*, June 1968, back cover) omitted the fact that these forms are used by all cognizant contract management offices of the Defense Department and Military Services. In the form of a reproducible hectograph master, the DD Form 250 can be used as an invoice when submitted in four copies to the administering contract management office. Supplies of the master DD Form 250 can be obtained free of charge from Defense Contract Administration Services Region offices and Military Department contract management activities.

Detailed information on use of the DD Form 250 is contained in Defense Procurement Circular No. 59, dated Feb. 14, 1968, which is available from contract administration offices.

Company Program Boosts Vietnam Effort

COPTER CARTOON by owen day



"Poor guy . . . done gone and lost his marbles!"

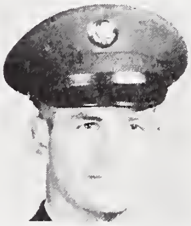
• SEND 'COPTER CARTOON IDEAS TO OWEN DAY, PUBLIC RELATIONS •

JERRY O. SHAW SPEAKS HIS MIND:

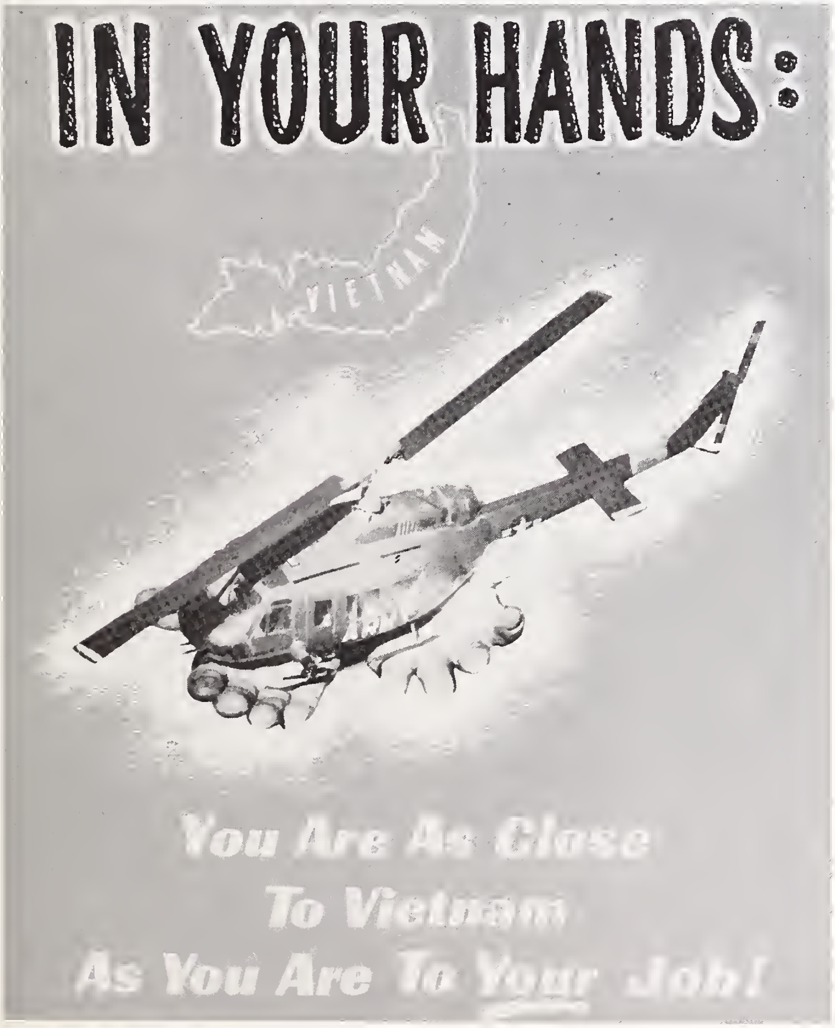
'I'm As Close To Vietnam As I Am To My Job!''

JERRY O. SHAW

Sp5 RONALD D. SHAW, 24, 126th FINANCE STATION, U. S. ARMY, IS THE BROTHER OF JERRY O. SHAW, CONTRACTUAL DATA, ENGINEERING, HURST PLANT, FIRST SHIFT. THE ARMY MAN HAS BEEN IN VIETNAM SINCE JULY, 1967. DAILY THE BELL WORKER WORKS ON THE HUEY TEAM KNOWING IN SOME MEASURE HE SUPPORTS HIS BROTHER AS ALL SERVICEMEN SERVING OUR NATION.



Sp5 RONALD D. SHAW



Many defense contractors have programs to inspire their employees to take pride in their work of supporting the war effort in Vietnam. One outstanding example is that of the Bell Helicopter Co., whose program was brought to the attention of the *Defense Industry Bulletin.*

Each week Bell Helicopter employees are reminded of their Vietnam support role when they receive their paychecks. Their pay envelopes carry a message from a fellow employee who has a relative serving in Vietnam: "I'm as close to Vietnam as I am to my job." Along with the message, the envelopes carry a picture of the employee and a biographical sketch and picture of the serviceman.

The credit for the pay envelope campaign belongs to Owen Day of the public relations department at Bell. In a letter to Bell Helicopter President Edwin Ducayet, Deputy Assistant Secretary of Defense (Public Affairs) Daniel Z. Henkin commended Day for his "thoughtful and noteworthy program."

The payroll reminder of Bell Helicopter employees' support of the Vietnam effort is part of an overall program which includes posters on bulletin boards around the Bell plant and picture stories of Huey helicopters in action in the semi-weekly Bell Helicopter News.

ASPR Committee Case Listing

The following is a listing (revised as of June 24, 1968) of the cases currently under consideration by the Armed Services Procurement Regulation (ASPR) Committee, of the Office of the Assistant Secretary of Defense (Installations and Logistics).

On items marked by asterisks, the text has been omitted to shorten the listing. The asterisks denote actions taken as shown below:

**—Case closed, no ASPR revisions resulting.*

***—Case closed, approved for printing in a subsequent ASPR revision.*

****—Case closed, approved for printing subject to further government coordination.*

The listing includes subjects of interest to contractors but excludes cases of a minor or editorial nature, those considered sensitive, and those involving a deviation from the regulation which are processed by the ASPR Committee.

The ASPR Committee meets with representatives of major industry associations periodically to explain the purpose and status of each of the cases under consideration, and to answer questions from industry representatives concerning the cases. All proposed ASPR changes of major policy are forwarded to industry associations in draft form for the review and comments of the association memberships. Industry comments are evaluated by the Defense Department before a final decision on the proposal is made by the ASPR Committee.

Rental Charges for Use of Government Property. To consider whether the adoption of a policy of charging rent for use of government property, across the board, would be more practical and less burdensome in assuring against competitive advantage, and would result in a decline in the number of requests for use of government property generally. No definitive action has been taken on the numerous proposed solutions to this matter. The problem is still under consideration.

Industry Cost Sharing. To consider revising the ASPR policy contained in 4–208 on industry cost sharing in connection with sales to foreign governments to provide additional policy guidance, for use in situations when the potential domestic and foreign commercial sales of the contractor appear to be very substantial and provisions for cost recovery by the Government of development expenses may be appropriate. Action on revising 4–208 has been completed. The revised coverage has been presented to higher authority for approval as a matter involving major policy.

Cost Principle—Depreciation. To review the depreciation guidelines and rules issued by new Revenue Procedures 65–13, and to prepare appropriate changes to ASPR 15–205.9 which may be necessary as a result of Revenue Procedures 65–13 issued by the Internal Revenue Service. After considering industry comments, revised coverage has been approved for printing in the 15–205.9 paragraph. However, printing of the .9 paragraph is being withheld until action to revise 15–205.32, covering "Gains and Losses on Disposition of Depreciable Property and Other Capital Assets," is complete. As a result of industry comments received on the .32 paragraph, the principle was changed to simplify both the language and the procedures for determining the gain or loss. Because of this change, the revised cost principle was again forwarded to industry for comment on May 31, 1968.

* **Environmental Pollution Control.**

Equal Employment Opportunity. To develop implementation of the Department of Labor revised rules with respect to the subject matter. This matter is currently under consideration by a special subcommittee.

Review of the Implementation of Public Law 87–653. To undertake a review of the ASPR implementation of Public Law 87–653 in depth on the basis of the experience thus far obtained, to determine the need for further guidance or clarification of such coverage. This review has been divided into five broad areas as follows:

(a) **The submission of data.** When is data submitted? Submission vs. disclosure or availability. Identification of data. Contracting officer (and other) documentation.

(b) **Definitions of "current" and "complete."** From the standpoint of reasonableness and practicability. How should significance be considered?

(c) **Examination of Records.** Audit before negotiation. Audit after contract award. Audit of subcontractor data.

(d) **Subcontract Problems.** Subcontracts under firm fixed-price primes. Second and third tier subcontracts.

(e) **Significance.** From the standpoint of price negotiation vs. application of defective pricing clause. Price changes after price agreement but before contract award.

Proposed coverage on (a), (b), (c) and (e) was previously circulated to industry for comment, and the results of this effort were issued on Defense Procurement Circular No. 57, dated Nov. 30, 1967.

Proposed coverage on the subcontract aspect of this matter was forwarded to industry for comment on March 4, 1968, with a request that comments be presented by May 4, 1968. Pursuant to industry's request, the date for submission of comments was extended to July 7.

Cost Information Reports (CIR). Proposed ASPR coverage for Cost Information Reports has been developed and was approved for print by the ASPR Committee. However, printing has been withheld based upon information that the basic DOD instruction is in the process of being changed, and that the changes contemplated will require redrafting the ASPR coverage.

Contract Modifications. To develop a new ASPR section consolidating service material dealing with all types of contract modifications. Consideration of this subject is continuing.

Handbook for Procurement Quality Assurance. To prepare an ASPR Supplement which will provide standardized procedures, where possible, for use of government inspection and quality assurance personnel. A draft of the proposed coverage is now being coordinated with the Military Departments.

Contractor Utilization of Industrial Production Equipment. To prepare procedures which will require an active government program to assure that government-furnished industrial production equipment, in possession of contractors, is being effectively utilized. The text of this case is currently being re-evaluated as a result of recent Congressional and General Accounting Office interest in the subject. This matter is still under consideration by the ASPR Committee.

** **Production Surveillance and Reporting.**

Transportation. To develop a new ASPR Section XIX covering transportation by expanding the existing Section I, Part 13, coverage to incorporate therein existing service material and thereby provide comprehensive guidance, including necessary contract clauses and provisions. Industry comments have been evaluated and the revised coverage approved subject to final editing.

Communications Services. Development of uniform ASPR coverage which would permit deletion of existing Departmental coverage with respect to procurement of communication services from both regulated and non-regulated suppliers. Industry comments have been received, considered, and revised coverage developed. Final action of this coverage has been delayed awaiting review by higher authority.

** **Cost-Plus-Award-Fee Contracts.**

Advance Understanding of Allowability, ASPR 15–107. To revise the existing ASPR paragraph to explicitly provide that such agreements must be in writing to be binding on the Government. Proposed ASPR coverage concerning Advance Understandings on Particular Cost Items was forwarded to industry for comment on May 29, 1968. The comments received from industry and other government agencies are currently under consideration.

Compensation Review Procedures. To prepare procedures to be followed by government personnel to assure that compensation paid to contractor employees performing on government contracts is reasonable. Subcommittee report is being evaluated.

Training and Educational Costs—ASPR 15–205.44. To consider whether changes in the training and educational requirements of contractors and the manner of meeting such changes warrant a revision of the present ASPR 15–205.44. This case was initiated as a result of comments received from an Association in May 1967. Following consideration of the comments received, it was concluded in October 1967 that no change be made in the cost principle on this subject. On May 14, 1968, additional information with respect to changing the subject cost principle was presented by an Industry Association letter. This matter is currently under consideration.

** **G&A Expenses—ASPR 15–203(c).**

Help Wanted Advertising — ASPR 15–205.33. To consider revising the cost principle to define the type of recruiting advertising that is allowable. Prior to undertaking a revision of the subject cost principle, the Committee determined to seek industry assistance in an effort to obtain data which could be used in assessing the benefits of (i) institutional type advertising containing help wanted advertisments, in contrast with (ii) help wanted advertising in the classified section of the daily newspapers. A response from CODSIA providing data in this area was received on April 26 and is currently under consideration.

Technical Data Warranty. To consider the advisability of incorporating in ASPR a warranty clause for technical data. Proposed ASPR coverage with respect to the subject matter was forwarded to industry for comment on May 17, 1968.

** **Revision to ASPR Section VII.**

** **Proposed War Risks Insurance Coverage for Contractor Employees.**

** **Price Warranty Provisions in Escalation Clauses.**

Established Price Warranty Clause. To develop and prescribe the use of a "Price Warranty" provision in small purchases and other fixed price negotiated procurements, in which cost or pricing data is not obtained. Industry comments on the proposed Price Warranty provision have been received and evaluated. This matter is still under consideration.

Predetermination of Rights in Data. To reconsider the predetermination policy and its application, and determine the practical utility of the procedures and whether the procedures should be revised. Proposed ASPR coverage on the subject matter was forwarded to industry for comment on March 14, 1968, with a request that comments be presented by May 14. On May 8, 1968, pursuant to industry's request, the date for submission of comments was extended to June 14. This date was subsequently extended to June 28.

Reporting of Labor Disputes. To consider revising the coverage contained in 12–101.3, "Reporting of Labor Disputes," and the ASPR clause in 7–104.4, "Notice to the Government of Labor Disputes," to clarify and simplify the reporting of labor disputes under the subject coverage.

** **"Use and Charges" Clause, ASPR 7–702.12.**

* **Definition of Adequate Competition.**

* **Allocation of Personal Property Taxes Assessed on Commercial Work in Process to Defense Contracts.**

** **Contractor Performance Record (Supply and Equipment).**

Modification of Weighted Guidelines To Give Greater Recognition to Invested Capital. To develop a revision to the present weighted guidelines coverage to give more recognition to contractor investment.

** **Providing Contractually for the Administrative Resolution of Government Breaches.**

Purchase vs Lease; Allowability of Costs Under ASPR 15–205.34 and 15–205.48 for ADPE, Other Equipment and Buildings. To clarify 15–205.34(b) in light of the General Accounting Office report alleging improper application; revision of 15–205.48 to provide that a "price" established pursuant to 15–205.22(e) may be used for the purpose of determining ownership costs of ADPE rented from an affiliate; modify 15–205.9 to insert a new paragraph (g) to clearly point out that depreciation cost basis of any equipment, including ADPE, may be at a "price" established pursuant to 15–205.22(e); modify 15–205.34 and .48 to specifically provide that "interest" and other non-allowable costs are to be included in comparing or limiting rental costs to those of ownership; and to clearly provide that "interest" is not an allowable cost. Proposed ASPR coverage with respect to the subject matter was forwarded to industry for comment on May 27, 1968.

Revision to ASPR 15–205.41—Tax-Principles on Bid and Proposal and Independent Research and Development. To solicit comments on proposed ASPR revision of Independent Research and Development (IR&D) cost principle and the Bid and Proposal (B&P) cost principle from industry associations and other government agencies. The proposed revisions to the existing ASPR cost principles on Independent Research and Development and Bid and Proposals were developed as a staff action outside of the ASPR Committee, and referred to the Committee for editing and the obtaining of industry comments. This material was forwarded to industry on Jan. 29, 1968. On March 25, 1968, the reporting date for submission of comments by industry and government agencies was extended to June 30, 1968.

Contractor Performance Evaluation (Development) Expansion. To expand the DOD program of contract performance evaluation to include all profit contractor development contracts of $100,000 or more. The proposed ASPR expansion in this area was forwarded to industry for comment on May 14, 1968.

Revision to ASPR 15–205.41–Taxes. To develop a revision to existing ASPR cost principles to reflect Opinion No. 11 of the Accounting Principles Board of the American Institute of Certified Public Accountants that "income tax expense should include tax effects of revenue and expense transactions included in the determination of pretax accounting income." A proposed revision of the 15–205.41 paragraph to accomplish the foregoing was forwarded to industry for comment on June 10, 1968.

Preference for U.S. Flag Aircraft. To expand Section I, Part 14, to require the use of U.S. Flag air carriers in preference to foreign air carriers for international air shipment in connection with DOD contracts.

CPFF Contracts and Progress Payments for Fixed-Price Contracts, Expediting Payment. To consider suggestions received from industry to expedite payment for cost-plus-fixed-fee contracts and progress payments for fixed-price contracts.

Relocation Costs, ASPR 15–205.25. To include in the subject paragraph a new sub-paragraph (e) providing that "payment for employees" income taxes incident to reimbursement relocation costs are unallowable." The proposed addition to ASPR quoted above was forwarded to industry for comment on May 22, 1968.

SENLOG to Move to Huntsville, Ala.

The U.S. Army Sentinel Logistics Command (SENLOG), temporarily located in Washington, D.C., since it was organized last April, will be moved to a permanent site at Huntsville, Ala.

SENLOG, a major subordinate command of the U.S. Army Materiel Command, was established to provide logistical support to the Sentinel System, the Communist Chinese-oriented antiballistic missile system approved for deployment last September.

SENLOG's responsibilities include all aspects of inventory management and maintenance engineering functions required to support the Sentinel System.

Huntsville is the location of the Sentinel System Command, the field agency of the Sentinel System organization charged with development, acquisition and installation of the antiballistic missile system.

Elements of other U.S. Army agencies involved with deployment of the Sentinel System are also located in the Huntsville area.

Brigadier General Mahlon E. Gates heads SENLOG.

Calender of Events

Sept. 16–18: American Institute of Aeronautics and Astronautics Third Space Simulation Conference, Seattle, Wash.

Sept. 23–25: American Institute of Aeronautics and Astronautics Second Aerodynamic Deceleration Systems Conference, El Centro, Calif.

Sept. 26: National Security Industrial Association Twenty-Fifth Annual Dinner, Sheraton Park Hotel, Washington, D.C.

Sept. 30–Oct. 1: American Institute of Aeronautics and Astronautics Joint Engineering Management Conference, Marriott Motor Hotel, Philadelphia, Pa.

Oct. 3: Fourth Annual Air Force/Industy Cost Reduction Awards Ceremony and Workshop, International Hotel, Los Angeles, Calif.

Oct. 13–16: National Defense Transportation Association Twenty-Third Annual Forum, Washington-Hilton Hotel, Washington, D.C.

Oct. 13–19: American Institute of Aeronautics and Astronautics Nineteenth International Astronautical Congress, Waldorf Astoria Hotel, New York, N.Y.

Oct. 21–23: Defense Supply Agency Twenty-First Annual Convention, Sherman House, Chicago, Ill.

Oct. 21–25: American Institute of Aeronautics and Astronautics Fifth Annual Meeting and Display, Civic Center, Philadelphia, Pa.

Oct. 28–30: Association of the U.S. Army National Meeting, Sheraton-Park Hotel, Washington, D.C.

Nov. 6–8: American Institute of Aeronautics and Astronautics Conference on Composition and Dynamics of the Upper Atmosphere, University of Texas at El Paso.

Nov. 18–20: American Petroleum Institute Annual Convention, Hilton Hotel, Chicago, Ill.

Nov. 19–22: American Institute of Aeronautics and Astronautics Third International Symposium on Basic Environmental Problems of Man in Space, Geneva, Switzerland.

Dec. 2–4: Institute of Electrical and Electronics Engineers 1968 Reliability Physics Symposium, Washington, D.C.

Dec. 3–5: American Institute of Aeronautics and Astronautics Entry Vehicle Systems and Technology Conference, Williamsburg, Va.

Management Counseling for Small Business

Clyde Bothmer

[*Editor's Note: This is the third in a series of articles intended to bring small and big business readers up to date with the programs of the Small Business Administration. The author, Clyde Bothmer, is Deputy Associate Administrator of the Small Business Administration.*]

There are over 5 million small businesses in the United States today. They range from one-man operations to sophisticated small manufacturing concerns. In this highly competitive society, many of these firms fail. Dun and Bradstreet, analyzing the cause of business failures, found that 9 out of 10 firms fail due to managerial problems. Their figures also show that 50 percent of new small businesses failed before they were two years largely because of management. The most common reasons for these business failures are:

- Lack of qualifications to run a business.
- Lack of training as manager.
- Improper pricing of products and not buying at the best price.
- Poor selling programs.
- Inadequate records.

Since it is established policy of the Congress that "the Government should aid, counsel, assist, and protect, insofar as is possible, the interests of small business concerns," and since the Small Business Administration (SBA) was created to carry out the policies declared in the Small Business Act, the SBA is vitally interested in providing to the management the information and training which will help reduce the mortality rate of small businesses. Several methods are used, falling into three general programs of the SBA Office of Procurement and Management Assistance: the education program, which will be discussed in the next article of this series; the local counseling program, maintained by the professional staff of SBA; and an in-depth assistance program, dependent on the volunteers of the Service Corps of Retired Executives (SCORE).

The present broad-gauged management assistance programs originated in a support function of early loan programs. One of the principal functions of SBA in 1953–54 was considered to be the provision of financial advice to small businesses, and such advice often veered to management problems which were the real source of financial difficulties of small firms. The advisors at that time were the financial specialists in the various field offices. There was some assistance available for those with problems relating to government procurement, production problems, material and equipment, and new products. In terms of the management functions of planning, directing, controlling and supervising, however, there was no personal counsel available from SBA.

By 1955, SBA was responding to some of the requests for individual assistance, although most of the inquiries were referred to reliable sources of assistance outside of the agency. About 1,100 specific requests were answered by correspondence from the central office in Washington, D.C. A small number of assistance cases was also handled by various field offices on a non-regulated, individual case basis. Gradually as the need and demand for personal help increased, recognition of the responsibility to provide this type of service grew. The increased demand for such aid also pointed up the impracticalities of counseling the nation's small businessmen from Washington. Counseling on individual problems was accepted as a functon of the field offices.

While this shift was taking place, a change of emphasis was occurring in the type of counseling required. Originally, the principal interest of those seeking SBA guidance was to obtain information on starting a business. This demand did not slacken. In fact, it increased to the point that the most practical approach became the scheduling of special programs (now called Workshops for Prospective Small Businessmen) which would satisfy the general needs of groups of individuals planning to establish a business enterprise.

For many, the problems of owning a business and the magnitude of the responsibility involved become apparent for the first time in these workshops. Frequently, participants realize that they are not suited to those problems and responsibilities, and save their capital and personal investment by forgetting the idea. SBA considers that its functions is no less validly performed if those slated to fail are diverted. Other participants are encouraged to plan more seriously and more effectively by an early recognition of the prospective difficulties. Hopefully, that additional planning will reduce the potential for failure of the new business. This increased assistance to those starting out contributed to the expansion of SBA counseling to a more broadly based approach. Those who succeeded in their new businesses were familiar with SBA and accustomed to its services. They joined with other businessmen to seek help in expanding, improving and developing their enterprises.

SBA recognized its obligation not to desert those it had helped to launch and, thus, the further increase of workshops, conferences and seminars was imperative. For those in the early stages of their businesses, the common and basic topics of record keeping, pricing, credit terms, collections, etc., were incorporated into one-day conferences in order to convey information to a maximum of those concerned with a minimum of impact on the time of the SBA staff. Other conferences centered on problems unique to a given industry. Special clinics on single subjects, common to a group of participants, were used. None of this "group counseling" lessened the need, demand, or desirability for individual assistance. The time of the SBA counselor or spent on problems shared by all was reduced, and the concentration on individual and specific problems continued to grow. Once again, the number of those who had been familiarized with SBA programs increased and the demand for additional personal service grew with it.

By 1960, the number of management counseling cases had reached approximately 12,000 per year. In 1962, there were 16,000 counseling cases on management problems. During the same year, there were also 501 completed units of management courses, with a participation of 15,383. The total of individual cases reached 38,000 in 1966.

In the middle of 1967, SBA reexamined the entire management counseling program in the light of experience. There was no question that the program was fulfilling a genuine need; the past indicated that the future could only be busier. Therefore, the program was restructured to broaden its offerings and to increase the availability of its benefits to the public. Adhering to modern communications methodology, SBA selected an acronym title for the "new look" of the program—CALL (Counseling At Local Levels).

This new look meant that SBA expressly expanded the scope of management counseling to include any phase and facet of establishing, purchasing, operating, merging, relocating and liquidating a small business. Emphasis was placed on the mandate to seek out the client in need of or desiring assistance, instead of waiting in an office for the businessman to initiate the case. This policy of seeking out potential clients is an important factor in the effort which SBA is making to give more timely aid to small businesses in danger of default on a government contract (discussed in previous article).

Since assistance and counseling is dependent upon the management assistance officers (MAOs) in regional and branch offices, the MAOs have been given increased freedom in planning, scheduling and publicizing their visits to communities in their assigned sphere. The MAOs are circuit riders in a sense, making themselves available on a regular basis to areas of need, rather than saturating the immediate environs of the regional or branch offices. From a business point of view, we might say that they are opening up new markets. During the first year of this approach to the program, the 135 MAOs in the 72 field offices of SBA have logged over 89,000 personal counseling cases and more than 2,500 units of training, with an attendance in excess of 84,000.

The efforts of the MAOs do not show, however, the entire story of the management assistance available through SBA. As is evident from the figures cited, the SBA carries a large load in the organization of group counseling and a substantial responsibility to help individuals work out particular difficulties of their businesses. Many times, however, the owner of a small business will not be certain what his problem is. Low profits are a symptom of the real illness, but the manager may lack the experience or specific business knowledge to reduce his general trouble to specific problems.

A large corporation may call in professional management consultants to identify difficulties and to suggest solutions, or a "trouble-shooter" staff may be a regular part of the organization. The small firm, however, is unlikely to have the capital or the human resources for either course. SBA could send MAOs to survey these small firms but the consumption of their time on such surveys would limit the assistance program severely. Additionally, the odds would be heavily against the SBA representative possessing experience in the specific industry being surveyed; the experience factor is not a *sine qua non,* of course, but certainly valuable in the situation described. Finally, it must be remembered that the MAOs are not intended to fulfill the role of specialized management consultants. The wide variety of problems and the broad scope of business difficulties confronted in an individual counseling situation preclude the development of specialized expertise. For those reason and others, SBA and the small businessman are both fortunate to be able to tap one of the nation's heretofore neglected resources: the knowledge and experience of retired managers.

The Service Corps of Retired Executives (SCORE) was founded in 1964 to create an executive talent pool which could serve the nation's small business community. It provides expert management counseling at practically no cost to the client, and was formed solely to aid the "little guy" who had no place to turn. The talent comes from retired business executives who donate their time. They represent every industry and profession including lawyers, bankers, retailers, economists, plant managers, and—naturally—former owners of every type of small business. SBA is making a particular effort at present to increase the enrollment of retired scientists, engineers and technologists.

Although SBA is the sponsor of the organization, SCORE is operated by the membership. The members of the 184 chapters, operating under chapter charter and by-laws, elect their own officers for administration of the chapter. Each group maintains a roster of volunteers for the daily operation of an office. In cities where there is an SBA field office, a chapter may use that office and obtain clerical help and administrative support from SBA. But in cities outside the SBA network, chapters must find their own space and supply their own clerical help. SBA assists in obtaining the facilities and services which are usually donated by the local Chamber of Commerce or a public spirited businessman.

When a SCORE chapter is founded, the attendant publicity lets businessmen of the area know that SCORE counseling is available and where to seek it. There is also a continuous effort by the SBA to inform the public of the program and to make its purposes known.

Acceptance of small firms as SCORE clients is dependent on two things: the ability of the SCORE chapter to provide the assistance needed and the eligibility of the applicant. Any firm with less than 25 employees is eligible, regardless of its association, or lack of same, with other SBA programs. Occasionally, other small businesses with particular problems which are brought to the attention of SBA management assistance personnel may be referred to SCORE. Some small firms call for SCORE review simply to get a fresh slant on operations and, perhaps, make a successful business even more profitable. SCORE is also available to prospective business owners. The SCORE volunteer can aid the man who is thinking about going into business by helping him plan soundly for his new venture.

After referral by SBA, the SCORE chapter will match the owner's need to the expertise of the appropriate volunteer. The volunteer who receives the case will himself arrange for appointments and visit the client at his place of business to make on-the-spot observation, to discuss goals and methods, and to present his analysis and suggestions. If necessary, he may call in other SCORE experts. The counselor's time for this service is free. SBA does ask the businessman who uses SCORE to reimburse the expert for his expenditures, such as travel on the assignment. Otherwise, the expert serves without fee.

Recently, in an effort to make an objective evaluation of the program, SBA obtained opinions from 704 small business owners and managers who had received SCORE counseling. Replies to questionnaires were received from approximately 350 cities in 28 states.

Four questions were asked concerning the advice and suggestions offered by the SCORE counselors, and approximately 80 percent of the counselors were reported as providing suggestions which two out of three clients planned to heed. In response to a question on the actual results of the service, more than twice as many businessmen reported their businesses had improved as those who reported no improvement. One-third of the firms had employed more people after counseling, and 37 percent had lowered their costs of operation. Almost half had realized more profit. When asked for an opinion on the worth of the assistance by the SCORE advisers, 60 percent rated them as very high or adequate to the job. An additional 20 percent reported that it was too soon to evaluate the efforts of the advisers. In total, the results of the study were highly encouraging to SBA—a vote of confidence in the program.

All of this management assistance and counseling is directed to the small businessman, and it may appear of no consequence at all to the nation's industrial giants. Yet, there is a relationship. It would be a glittering generality to say that this effort contributes to a stronger national economy; but if we consider that these small firms are both suppliers and consumers for those same giants, their efficiency and economic stability is obviously desirable. The management counseling programs will help to make them effective sources of supply and dependable practices."

DOD Sets Fall Dates for Procurement Conferences

Industry and small business representatives will be given a chance to become acquainted with Federal procurement and contract processes at a series of defense procurement conferences to be held this fall.

The Procurement Conference Program is part of the Defense Department's continuing effort to develop additional competitive sources, large and small, to meet defense needs.

During the conferences, businessmen and potential contractors are provided an opportunity to meet specialists on business opportunities representing the Army, Navy, Air Force and the Defense Supply Agency.

Counselors will be on hand to explain the activities of the Defense Contract Administration Services, the Defense Documentation Center, the Defense Specification Center, and other DOD organizations concerned with prime and subcontracting.

In addition to Defense Department representatives, officials from other Federal agencies will participate in specific conferences which relate to their activities.

Information contacts for the fall series of Procurement Conferences are:

Sept. 5. **St. Louis, Mo.** Contact: Dr. Garland R. Hadley, Exec. Vice President, St. Louis Regional Industrial Development Corp., Pierre La Clede Building, 7741 Forsyth Blvd., St. Louis, Mo. 63105, Phone (314) 726-5654.

Sept. 9. **Rochester, Minn.** Contact: Eugene J. Slama, Rochester Chamber of Commerce, 212 First Ave., S.W., Rochester, Minn. 55901, Phone (507) 289-4546.

Sept. 13. **Denver, Colo.** Contact: Washington Office of Representative Donald G. Brotzman, Room 1713, Longworth Building, Washington, D.C. 20515, Phone (202) 225-2161.

Sept. 18. **Van Nuys, Calif.** Contact: Julian Ross, Defense Supply Agency, Cameron Station, Alexandria, Va. 22314, Phone (703) 974-6471.

Sept. 26. **Yakima, Wash.** Contact: John E. Means, Washington Department of Commerce and Economic Development, 312 First Ave., N., Seattle, Wash. 98109, Phone (206) MU 2-3792.

Oct. 3. **Lubbock, Tex.** Contact: Grey Lewis, Lubbock Chamber of Commerce, P.O. Box 561, Lubbock, Tex. 79408, Phone (806) 763-4666.

Oct. 21-23. **Chicago, Ill.** Contact: Lloyd Norris, Dir., Management Training and Communications Div., Chicago Association of Commerce and Industry, 30 W. Monroe St., Chicago, Ill. 60603, Phone (312) FR 2-7700.

Oct. 30. **Louisville, Ky.** Contact: Bill Stratton, Exec. Asst. to the Commissioner, Kentucky Department of Commerce, Frankfort, Ky. 40601, Phone (502) 564-3408.

Dec. 1. **Los Angeles, Calif.** Contact: George C. Tolton, Asst. for Small Business, Defense Contract Administration Services, Cameron Station, Alexandria, Va. 22314, Phone (703) 974-7605.

DDC Explains Policy Changes

Two major changes in policy have been instituted at the Defense Supply Agency's Defense Documentation Center (DDC) since publication of an article describing the services of the center (see article "Programs and Services of the Defense Documentation Center," Defense Industry Bulletin, *April 1968, page 1). The changes pertain to a service change levied for paper copies of certain technical reports, and the granting of limited access to the center's Research and Technology Work Unit Information System to non-government organizations registered for DDC services.*

The article in the Bulletin *and the policy changes have generated considerable interest in DDC programs, as well as a myriad of questions concerning the services available to the Federal research and development community. The following questions, with answers, should clarify misconceptions of the center's programs and the changes in these programs.*

Service Charge

Q. Is the service charge for requesting certain paper copies of technical reports applicable to military components and other Federal agencies?

A. Yes. The service charge applies to all user organizations registered with DDC.

Q. Does the service charge for paper copies of technical reports requested of DDC apply to all titles?

A. Only those technical reports for which microfiche copies are also available will be subject to the $3 service charge. Documents stored at the center on microfilm (generally unclassified/unlimited documents accessioned before August 1964 and other reports added to the collection prior to August 1965) will be reproduced and supplied without charge to the user. A handy reference card, listing the AD (control) numbers of technical reports for which the service charge is applicable, is available from the center (attention DDC-LC). The listing was published in the May 6, 1968, issue of the "DDC Digest."

Q. How are users to pay for those technical reports which are subject to the $3 service charge?

A. Requests for these documents must be accompanied by payment and sent to the Clearinghouse for Federal Scientific and Technical Information, U.S. Department of Commerce, Springfield, Va. 22151. The Clearinghouse provides two efficient methods of payment: the Prepaid Coupon System and the Deposit Account Coupons System. Use of either of these systems reduces the processing times for report requests. The Clearinghouse will accept checks or money orders as payment for the reports.

Q. Are any other charges assessed for DDC services?

A. No. The only charge assessed for DDC services is for paper copies. However, offset masters of technical reports are considered paper copies, and are subject to special service charges. The cost of offset masters will be determined according to the number of pages to be produced, and through arrangements between the requesting activity and DDC.

Contractor Access to Data Bank

Q. When will the Research and Technology Work Unit Information System (R&TWUIS) be opened to the contractor, subcontractor and grantee users of DDC services?

A. Limited access to this data bank (R&TWUIS) became available to defense contractors, subcontractors and grantees effective July 1, 1968.

Q. Are there any restrictions concerning the limited access granted defense contractors, subcontractors and grantees to the R&TWUIS?

A. These registered users must be located within the continental limits of the United States, Hawaii, or Alaska. In addition to security considerations, the source may determine if limitations should be placed on the work unit descriptions to restrict their distribution. Access to classified information in the R&TWUIS will be similar to access for classified technical reports.

Q. Will access to the R&TWUIS terminate at the expiration of a contract or grant?

A. Yes. Access to this resource terminates at the expiration of a contract and no information can be provided after that date. To provide response time within the eligibility period, requests must be received at DDC at least 10 days prior to the expiration date on the DD Form 1540, "Registration for Scientific and Technical Information Services."

Technical Report Announcements

Q. Why does DDC provide only a single subscription to the "U.S. Government Research and Development Reports" (USGRDR) to organizations registered for service?

A. The Defense Department bears the cost of providing the single subscription to the USGRDR to the organizations registered for DDC services. Additional subscriptions to this periodical, which contains announcements of research reports in the public domain from the Defense Department and other government agencies, may be purchased directly from the publisher, the Commerce Department's Clearinghouse.

Q. How may an organization contributing reports to DDC learn the control (AD) numbers assigned to those reports prior to their announcements?

A. Contributors may be notified of the DDC control numbers assigned the technical reports more quickly by including DDC Form 50, "DDC Accession Notice," with each report submitted. As soon as the AD number is assigned to the document (an initial effort in processing the report), the number is noted on the form, which is immediately returned by mail to the source. Contractors should submit two copies of DDC Form 50; one addressed so as to be returned to the contractor, the other to be mailed to the government sponsoring agency.

Report Collection

Q. Are technical reports accessioned by DDC retained permanently?

A. Almost every document ever accessioned by the center or its predecessor organizations is still available in the collection. Some 60,000 were retired to the files of the National Aeronautics and Space Museum when their value became more historic than scientific.

An advantage of this system of permanent retention was dramatically illustrated following a fire at the University of Miami Marine Science Institute in December 1967. Research papers produced during 17 years of study were destroyed. However, those reports which were submitted to DDC were reproduced and supplied to the Institute to partially reconstitute the collection. The incident likened the reports accessioned by the center to U.S. Savings Bonds—once submitted, they can be restored if lost or destroyed.

Q. DDC's collection of technical documents was reported to exceed 850,000 titles. Why isn't the collection purged of the older titles so that it would reflect only the latest findings or discoveries?

A. A chemical formula derived many years ago may still be the key to removing the mystery surrounding a current project. If the collection had been purged of the older documents, many technical reports on conventional warfare would have been discarded, and these are the reports being requested for use in studies relating to warfare in Vietnam. Area studies pertaining to the Far East are requested in large numbers even though the studies were performed prior to or during World War II. Having these reports available has saved valuable research time, talent and dollars. If the reports were not available, the work would have to be duplicated, and in most instances at costs much greater than the original studies.

Q. Are non-government user organizations required to return technical reports acquired from DDC at the termination of contracts?

A. Documents should never be returned to DDC unless specifically requested by the center; such recalls are rare. The costs of sorting, refiling and storage of returned documnets are prohibitive to the center. From the user's viewpoint, there is the expense of packaging and postage, especially in the return of classified reports. When the user organization determines that there is no longer a need for the reports, they should be disposed of in accordance with instructions in the DOD Industrial Security Manual.

Computer Vocabularies

Q. Is it necessary to use the terms from the DDC computer vocabulary in requesting a bibliography?

A. DDC prefers that the problem or project for which a bibliography is being requested be described in the requester's own language. The description should be presented in clear, concise terms, in short, direct sentences. The request should be as specific as possible—tell DDC what information you want, what information you don't want, and the purpose of the bibliography. The name and telephone number of the person who will use the information is an important requirement on the request form. If necessary, a DDC bibliographer will call that individual, collect, to get specific information or to alert him if the computer printout is expected to be extensive. The center's bibliographers will convert the request into a computer search strategy, using thesaurus terms and other modes to retrieve the titles which are most relevant to the subject, problem, or project.

Q. The April 1968 issue of the *Bulletin* carried an item on the DOD "Thesaurus of Engineering and Scientific Terms." When will this vocabularly be made available?

A. Publication of this thesaurus, referred to by the acronym TEST, is well behind schedule due to difficulties in printing the vocabulary on new and highly sophisticated computer-controlled equipment. According to the Office of Naval Research, which has sponsored its development, TEST will be produced during the fall of 1968 and the availability will be announced widely in DOD and other publications.

Potential Defense Contractors Program

Q. Will DDC provide continuous service to contractors during intervals between contracts, or does service terminate when no contract or grant is in effect?

A. Under normal registration policies, service terminates at the expiration of the contract for which service is being provided. However, if a contractor is involved in research and development efforts which generate contracts with the Military Departments, it would be to the contractor's benefit to seek military sponsorship under the Potential Defense Contractors Program. Participation in this program would entitle the contractor to continuing service independent of a contract or grant.

Q. What procedures should be followed to determine if an organization may be eligible for DDC services under the Potential Defense Contractors Program?

A. The organization should first determine which of the Military Departments would have the greatest interest in its research efforts. Contact should then be made with that Military Department to seek sponsorship. The military programs and points of initial contact are:

Air Force Technical Objectives Document Release Program
Headquarters, Air Force Systems Command
ATTN: SCTL
Andrews Air Force Base
Washington, D.C. 20331

Army Qualitative Development Requirements Information Program
Commanding Officer
Frankford Arsenal
SMUFA—A2100, Bldg. 65–1
Bridge & Tacony Streets
Philadelphia, Pa. 19137

Department of the Navy/Industry Cooperative R&D Program
Chief of Naval Operations
(OP-07T)
Washington, D.C. 20350

Microfiche Equipment

Q. Where may additional information be obtained concerning microfiche equipment costs, space requirements, and other characteristics?

A. For the latest information available on microfilm and microfiche equipment, a limited supply of two booklets entitled, "A Buyer's Guide for Microfilm Reader Evaluation" and "A Survey of Microfiche Readers and Reader-Printers Currently Manufactured in the United States," is available from the Defense Documentation Center (attention: DDC-TSR-1), Defense Supply Agency, Alexandria, Va. 22314. Copies of these booklets may also be requested from the Executive Secretary, National Microfilm Association, P.O. Box 386, Annapolis, Md. 21404.

A NASA report entitled, "The Introduction of Microfiche for Disseminating Technical Information in the United States," is available from the Clearinghouse. List price is $3 for paper copy; 65 cents for microfiche.

Use of IACS

Q. How do organizations registered with DDC avail themselves of services offered by Federally-sponsored Information Analysis Centers (IACs)?

A. A listing of Information Analysis Centers supported by the Federal Government (PB 177 050), prepared by the COSATI Panel on Information Analysis, is available from the Clearinghouse for Federal Scientific and Technical Information. DOD and other government agency contractors and grantees, interested in the services of a specific center, should contact that center directly. In general, all DDC-registered users are eligible to make use of these Information Analysis Centers.

DIRECTIVES AND REGULATIONS

*DOD Directive or Instruction	Implementing Service Regulations
DOD Instruction 3200.8, 7 March 66, "Standards for Documentation of Technical Reports under the DOD Scientific and Technical Information Program"	(AR 70–31, 9 September 66, (Change 1, 12 February 67 (Change 2, 20 July 67 (SECNAVINST 3200.29A, 14 June 66 (AFR 80–29, 18 May 64 (AFR 80–29A, 1 January 66 (AFR 80–29B, 5 August 66 (AFR 80–29, 18 May 64 (AFR 80–29A, 1 January 66
DOD Directive 5100.36, 31 December 62, "DOD Technical Information"	(AFR 80–29B, 5 August 66 (AR 70–45, 18 August 65 (SECNAVINST 3900.20, 1 February 63 (Change 1, 7 January 65
DOD Instruction 5100.38, 29 March 65, "Defense Documentation Center for Scientific and Technical Information (DDC)"	(AR 70–11, 8 October 65 (SECNAVINST 3900.24A, 4 August 65 (AFR 80–29, 18 May 64 (AFR 80–29A, 1 January 66
DOD Instruction 5100.45, 28 July 64, "Center for Analysis of Scientific and Technical Information"	(AR 70–22, 14 January 65, (Change 1, 4 May 67 (SECNAVINST 3900.31, 13 October 64 (AR 70–31, 9 September 66 (Change 1, 12 February 67
DOD Directive 5200.20, 29 March 65, "Distribution Statements (Other than Security) on Technical Documents" Change 2, 8 May 67	(Change 2, 20 July 67 (NAVMATINST 4000.17, 9 June 65 (Change 1, 30 December 65 (Change 2, 6 June 67 (AFR 310–2, 12 July 65 (AFR 310–2A, 14 September 66
DOD Instruction 5200.21, 1 September 65, "Certification for Access to Scientific and Technical Information"	(AR 70–21, 21 February 66 (SECNAVINST 3900.35, 5 January 66 (AFR 80–29, 18 May 64 (AFR 80–29A, 1 January 66 (AFR 80–29B, 5 August 66

* As of 7 December 1967

Figure 1.

Pertinent Directives

Q. Which DOD directives or instructions are most pertinent to the DOD Scientific and Technical Information (S&TI) Program?

A. DOD directives and instructions which most directly relate to the DOD S&TI Program are listed in Figure 1. Regulations of the Military Departments, which implement the DOD directives, are shown in the column on the right. Copies of the DOD directives and instructions are available, one copy per request, from the Naval Supply Depot, Attention: Code 300, 5801 Tabor Ave., Philadelphia, Pa. 19120.

Informational Services Available

Q. Does DDC provide informational materials for use in indoctrinating personnel within the organizations registered for service?

A. The center has a variety of brochures, pamphlets, feature article reprints, and other materials for this purpose. Requests for supplies of these handout items should be submitted to the center marked to the attention of DDC-LC. In addition, arrangements can be made for a member of the Field Liaison Staff, DDC Office of Customer Relations, to visit the user or potential user organization to brief its personnel on the center's programs and services.

Education with Industry Symposium in Seattle

The Air Force Institute of Technology and The Boeing Co. will cosponsor an "Education with Industry" symposium to orient and motivate 107 Air Force officers to their new assignments in 40 civilian-type jobs in defense contractors' plants. The officers and companies' representatives will meet in the Hyatt House, Seattle, Oct. 8–10. Contacts are: Walter H. Kee, Staff Assistant to the President, The Boeing Co., Mail Stop 1399, P.O. Box 3707, Seattle, Wash. 98124, phone (206) 655–5683; and Lieutenant Colonel Frank S. Raggio, Air Force Institute of Technology (AFIT–CIP), Wright-Patterson AFB, Ohio 45433, phone (513) 255–3151.

DEFENSE PROCUREMENT

Contracts of $1,000,000 and over awarded during the month of July 1968.

DEFENSE SUPPLY AGENCY

1—**Oregon Freeze Dry Foods**, Albany, Ore. $7,090,542. 9,120,060 food packets for long range patrols. Defense Personnel Support Center, Philadelphia, Pa. DSA 130–69–C–Z001.

—**S-M Vacu-Freeze Corp.**, Bartow, Fla. $1,135,143. 1,520,010 food packets for long range patrols. Defense Personnel Support Center, Philadelphia, Pa. DSA 130–69–C–Z002.

3—**Trenton Textile Engineering & Manufacturing Co.**, Trenton, N.J. $2,238,742. 701,800 collapsible five-quart canteens. Defense Personnel Support Center, Philadelphia, Pa. DSA 100–68–C–2472.

—**Eastern Canvas Products**, Haverhill, Mass. $1,066,744. 881,300 ammunition cases. Defense Personnel Support Center, Philadelphia, Pa. DSA 100–68–C–2778.

—**Switlik Parachute Co.**, Trenton, N.J. $1,024,714. 60,850 tropical lightweight nylon ruck sacks. Defense Personnel Support Center, Philadelphia, Pa. DSA 100–68–C–2782.

—**Westinghouse Air Brake Co.**, Peoria, Ill. $1,548,688. Earthmoving scrapers. Defense Construction Supply Center, Columbus, Ohio. DSA 700–68–C–9823.

—**International Airport**, El Paso, Tex. $1,826,400. 8,600,000 gallons of JP–4 jet fuel and servicing. Defense Fuel Supply Center, Alexandria, Va. DSA 600–68–D–2310.

5—**Zeks Industries**, Malvern, Pa. $1,125,233. 694 air conditioners and data. Defense Construction Supply Center, Columbus, Ohio. DSA 700–68–C–9851.

—**Pascoe Steel Corp.**, Pomona, Calif. $1,529,310. 750 prefabricated, ready-cut metal buildings. Defense Construction Supply Center, Columbus, Ohio. DSA 700–68–C–9850.

—**Butler Mfg. Co.**, Kansas City, Mo. $1,526,250. 750 prefabricated, ready-cut metal buildings. Defense Construction Supply Center, Columbus, Ohio. DSA 700–68–C–9857.

16—**Ziegler Co.**, Milwaukee, Wis. $1,351,687. 40,780,500 candy-coated discs for use in combat rations. Defense Personnel Support Center, Philadelphia, Pa. DSA 130–69–C–Z034.

—**Switlik Parachute Co.**, Trenton, N.J. $1,024,714. 60,850 tropical lightweight nylon ruck sacks, with three small liners and one large liner. Defense Personnel Support Center, Philadelphia, Pa. DSA 100–68–C–2787.

18—**Interstate Bakeries Corp.**, Kansas City, Mo. $1,121,632. 10,195,584 cans of baked items for use in combat rations. Defense Personnel Support Center, Philadelphia, Pa. DSA 130–69–C–Z040.

—**Morton House Kitchens, Inc.**, Nebraska City, Neb. $1,028,524. 6,796,992 cans of baked items for use in combat rations. Defense Personnel Support Center, Philadelphia, Pa. DSA 130–69–C–Z041.

19—**Tony Downs Foods**, St. James, Minn. $2,135,913. 6,796,896 cans of beans with spiced sauce. Defense Personnel Support Center, Philadelphia, Pa. DSA 130–69–C–Z053.

—**Blue Star Foods**, Council Bluffs, Iowa. $2,095,205. 6,796,896 cans of beef steak. Defense Personnel Support Center, Philadelphia, Pa. DSA 130–69–C–Z054.

—**Phipps Products Corp.**, Boston, Mass. $1547,432. Various quantities of petro-chemical items. Defense Fuel Supply Center, Alexandria, Va. DSA 640–68–D–0148.

23—**Oscar Mayer Co.**, Madison, Wis. $4,455,530. 6,796,896 cans of sliced ham and 6,796,896 cans of sliced pork. Defense Personnel Support Center, Philadelphia, Pa. DSA 130–69–C–Z055.

—**Tony Downs Food Co.**, St. James, Minn. $2,925,796. 6,796,752 cans of spaghetti with ground meat and 3,796,752 cans of beef slices with potatoes. Defense Personnel Support Center, Philadelphia, Pa. DSA 130–69–C–Z066.

—**F&M Trim Shop**, Newburgh, N.Y. $3,372,824. 463,300 poncho liners. Defense Personnel Support Center, Philadelphia, Pa. DSA 100–69–C–0127.

—**Consolidated Foods Corp.**, Cambridge, Md. $1,115,709. 6,796,752 cans of beans with frankfurter chunks in tomato sauce. Defense Personnel Support Center, Philadelphia, Pa. DSA 130–69–C–Z056.

25—**Texaco, Inc.**, New York, N.Y. $2,419,720. Premium and regular gasoline. Defense Fuel Supply Center, Alexandria, Va. DSA 600–68–D–2360.

—**Standard Oil Co.**, San Francisco, Calif. $1,590,951. Fuel Oil and gasoline. Defense Fuel Supply Center, Alexandria, Va. DSA 600–68–D–2359.

26—**Granite State Canning Corp.**, Manchester, N.H. $1,636,372. 6,796,752 cans of meatballs with beans in tomato sauce. Defense Personnel Support Center, Philadelphia, Pa. DSA 130–69–C–Z075.

—**Foremost McKesson, Inc.**, San Francisco, Calif. $1,268,271. 15,187,024 cans of cheddar cheese spread. Defense Personnel Support Center, Philadelphia, Pa. DSA 130–69–C–Z080.

31—**General Foods Corp.**, White Plains, N.Y. $1,060,318. 1,669,500 800-gram units of rice. Defense Personnel Support Center, Philadelphia, Pa. DSA 130–69–C–M009.

CONTRACT LEGEND

Contract information is listed in the following sequence: Date—Company — Value — Material or Work to be Performed—Location of Work Performed (if other than company plant) — Contracting Agency—Contract Number.

DEPARTMENT OF THE ARMY

1—**Motorola, Inc.**, Scottsdale, Ariz. $2,288,000. AN/APS–94 radar surveillance sets. Electronics Command, Fort Monmouth, N.J. DA AB07–68–C–0419.

—**Litton Systems**, Woodland Hills, Calif. $2,056,325. Test equipment to support AN/ASN–86 inertial navigation sets. Electronics Command, Fort Monmouth, N.J. DA AB07–68–C–0345.

—**Continental Motors**, Mobile, Ala. $1,360,000. Remanufacture of engine assemblies, with containers, for replacement spares for M48 and M60 tanks. Tank Automotive Command, Warren, Mich. DA AE07–68–C–1166.

—**Computer Sciences**, Silver Spring, Md. $1,465,116. Internal procedures and automatic data processing programs with a training program. Electronics Command, Fort Monmouth, N.J. DA AB07–68–C–0436.

—**Miller & Sons**, Omaha, Neb. $1,178,205. Work on the Pappillion Creek and Tributaries Project. Engineer Dist., Omaha, Neb. DA CW45–68–C–0155.

—**Gisholt Machine Co.**, Madison, Wis. $1,327,150. Five engine lathes. Army Procurement Agency, Chicago, Ill. DA AG11–68–C–1509.

—**Mason & Hanger, Silas Mason Co.**, Lexington, Ky. $4,633,828. Operation of a bomb production plant and support services at the Army Ammunition Plant, Grand Island, Neb. Ammunition Procurement & Supply Agency, Joliet, Ill. DA AA09–68–C–0383.

—**Apex Building Constructors**, Newport News, Va. $1,127,000. Construction of two 200-man dormitories at Langley AFB, Va. Engineer Dist., Norfolk, Va. DA CA65–68–C–0184.

—**I.B.M. Corp.**, Gaitherburg, Md. $2,117,507. A combat services support system (CS3) logistics data processing subsystem. Washington Procurement Div., Electronics Command, Alexandria, Va. DA AB07–67–C–0408.

—**Johnson & Son, Inc.**, Minneapolis, Minn. $1,228,000. Construction of 200 and 600-meter testing ranges at the Army Ammunition Plant, Minneapolis, Minn. Engineer Dist., Chicago, Ill. DA CA23–69–C–0001.

2—**Fred R. Comb Co. and Steenberg Construction Co.**, Minneapolis, Minn. $2,327,100. Construction of four 200-man dormitories. Chanute AFB, Ill. Engineer Dist., Chicago, Ill. DA CA68–C–0094.

—**Martin Marietta Corp.**, Orlando, Fla. $24,595,300. $2,025,272. Pershing ground support equipment. Army Missile Command, Huntsville, Ala DA AH01–68–C–1628 and DA–AH01–68–C–1961.

3—**Goodyear Tire & Rubber Co.**, Akron, Ohio. $1,716,484. 12-ply pneumatic tires for five and ten-ton trucks. Gadsden, Ala. Tank Automotive Command, Warren, Mich. DA AE07–69–C–0006.

—**Firestone Tire & Rubber Co.**, Akron, Ohio. $9,196,510. T130 track shoe assemblies for M113 personnel carriers. Noblesville, Ind. Tank Automotive Command, Warren, Mich. DA AE07–69–C–0017.

—**Uniroyal, Inc.**, Detroit. Mich. $1,079,-12-ply pneumatic tires for five and ten-ton trucks. Los Angeles, Calif. Tank Automotive Command, Warren, Mich. DA AE07–69–C–0005.

5—**Wetmore & Parman, Inc.**, Jackson, Miss. $1,293,869. Construction of a shop building and warehouse. Vicksburg, Miss. Engineer Dist., Vicksburg, Miss. DA CW38–69–C–0004.

—**Raytheon Co.**, Andover, Mass. $2,197,652. Repair and overhaul of 148 major items of the Hawk missile system. Army Missile Command, Huntsville, Ala. DA 01–021–AMC–14159 (Z).

—**Hercules, Inc.** Wilmington, Del. $2,240,491. Support services and operation of an ordnance production facility. Radford, Va. Ammunition Procurement & Supply Agency, Joliet, Ill. DA W–11–173–AMC–00037 (A).

—**Hercules, Inc.**, Wilmington, Del. $2,007,513 Support services and operation of a propellant producing facility. Lawrence, Kan. Ammunition Procurement & Supply Agency. Joliet, Ill. DA 11–173–AMC–00042 (A).

—**Olin Mathieson Chemical Corp.**, New York, N.Y. $5,123,426. Support services and operation of an ammunition producing facility. Charleston, Ind. Ammunition Procurement & Supply Agency, Joliet, Ill. DA 11–173–AMC–00097 (A).

—**Remington Arms Co.**, Bridgeport, Conn. $2,397,563. Operation of a government-owned facility for production of small arms ammunition. Independence. Mo. Ammunition Procurement & Supply Agency, Joliet, Ill. DA 49–010–AMC–00003 (A).

—**Uniroyal, Inc.**, New York. N.Y. $3,476,152. explosives, and for loading, assembling and packing of medium and large caliber items. Joliet, Ill. Ammunition Procurement & Supply Agency, Joliet, Ill. DA 11–173–AMC–00062 (A).

—**Thiokol Chemical Corp.**, Bristol, Pa. $1,478,380. Operation of a government-owned facility and for loading, assembling and packing of ammunition and related components. Marshall, Tex. Ammunition Procurement & Supply Agency, Joliet, Ill. DA 11–173–AMC–00200 (A).

—**Day & Zimmerman, Inc.**, Philadelphia, Pa. $1,038,867. Operation of a government-owned facility and for loading, assembling and packing of ammunition items and components. Texarkana, Tex. Ammunition Procurement & Supply Agency, Jolit, Ill. DA 11–173–AMC–00114 (A).

—**Mason & Hanger, Silas Mason Co.,** New York, N.Y. $8,630,989. Operation of a government-owned facility and for loading, assembling and packing ordnance items and components, and for support services at the Army Ammunition Plant, Burlington, Iowa. Ammunition Procurement & Supply Agency, Joliet, Ill. DA 11–173–AMC–00085 (A).

—**Eastman Kodak Co.,** Kingsport, Tenn. $2,964,926. Support services and operation of a government-owned facility for production of various explosives. Ammunition Procurement & Supply Agency, Joliet, Ill. DA 11–173–AMC–00035 (A).

—**Firestone Tire & Rubber Co.,** Akron, Ohio. $1,332,445. Modernization activities of a facility for loading, assembling and packing of ammunition and related components. Ravenna, Ohio. Ammunition Procurement & Supply Agency, Joliet, Ill. DA 11–173–AMC–00065 (A).

—**Federal Cartridge Corp.,** Minneapolis, Minn. $3,745,800. Operation of a government-owned ammunition producing facility. New Brighton, Minn. Ammunition Procurement & Supply Agency, Joliet, Ill. DA 36–038–AMC–01099 (A).

—**Sperry Rand Corp.,** New York, N.Y. $5,740,365. Operation of a government-owned ammunition producing facility. Shreveport, La. Ammunition Procurement & Supply Agency, Joliet, Ill. DA 11–173–AMC–00080 (A).

—**Atlas Chemical Industries,** Wilmington, Del. $5,910,930. Operation of government-owned TNT producing facility. Chattanooga, Tenn. Ammunition Procurement & Supply Agency, Joliet, Ill. DA 11–173–AMC–00531 (A).

—**Olin Mathieson Chemical Corp.,** New York, N.Y. $3,771,395. Operation of a government-owned propellant producing facility and for support services. Baraboo, Wis. Ammunition Procurement & Supply Agency, Joliet, Ill. DA 11–173–AMC–00106 (A).

9—**Raythcon Co.,** Bedford, Mass. $16,260,783. Advanced development of the SAM–D missile. Army Missile Command, Huntsville, Ala. DA AH01–67–C–1995.

—Chrysler Corp., Warren, Mich. $1,263,919. M60 tank range finders. Dayton, Ohio. Army Procurement Agency, Cincinnati, Ohio. DA AG31–69–C–0002.

10—**S&M Contractors Co.,** Baltimore, Md. $1,190,000. Construction of a ballistics instrumentation laboratory. Aberdeen, Md. Engineer Dist., Baltimore, Md. DA CA31–69–C–0004.

11—**Zenith Radio Corp.,** Chicago, Ill. $1,690,128. 2.75-inch rocket fuze metal parts. Ammunition Procurement & Supply Agency, Joliet, Ill. DA AA09–68–C–0338.

12—**Eby Construction Co.,** Wichita, Kan. $5,235,096. Construction of a power plant and appurtenant works at the DeGray Reservoir, Ark. Engineer Dist., Vicksburg, Miss. DA CW38–69–C–0011.

—**Timmons, Butt & Head, Inc.,** Dayton, Ohio. $3,419,705. Construction of cleanrooms in the Avionics Science Laboratory, Wright Patterson AFB, Ohio. Engineer Dist., Louisville, Ky. DA CA27–68–C–0057.

—**M. M. Sundt Construction Co.,** Tucson, Ariz. $1,528,000. Construction of an addition to the Technical Management Control Center, Vandenberg AFB, Calif. Engineer Dist., Los Angeles, Calif. DA CA09–69–C–0006.

—**Construction, Ltd.,** Bordentown, N.J. $1,156,780. Construction of a BOQ at Fort Belvoir, Va. Engineer Dist., Norfolk, Va. DA CA65–69–C–0001.

15—Collins Radio Co., Richardson, Tex. $1,101,866. Engineering and technical services to provide advisory and liaison services to military users of Collins-manufactured communication equipment, world-wide. Electronics Command, Fort Monmouth, N.J. DA AB07–68–D–5060.

16—**Hughes Tool Co.,** Culver City, Calif. $1,091,161. Horizontal stabilizers and miscellaneous spare parts for OH–6A helicopters (Cayuse). Aviation Materiel Command, St. Louis, Mo. DA 23–204–AMC–03697.

—**Lockheed Missile & Space Co.,** Sunnyvale, Calif. $2,000,000. QT–3 Delta II aircraft. Aviation Materiel Command, St. Louis, Mo. DA AJ01–68–C–1920.

17—**Davis Contracting Co.,** Sandy Hook, Ky. $2,959,747. Construction of a dam and spillway at East Lynn Lake, W. Va. Engineer Dist., Huntington, W. Va. DA CW69–69–C–0009.

—**Penner Construction Co.,** Denver, Colo. $1,524,777. Development of a new training area. Fort Riley, Kan. Engineer Dist., Kansas City, Mo. DA CA41–69–C–0010.

—**Philco Ford Corp.,** Newport Beach, Calif. $35,779,350. Procurement of Shillelagh missiles. Hawthorne, Calif. Army Missile Command, Huntsville, Ala. DA AH01–69–C–0059.

18—**Page Communication Engineers.** Washington, D.C. $6,302,313. Twelve-months of operation and maintenance services for the Integrated Wide Band Communication System (IWCS) in Southeast Asia. Electronics Command, Fort Monmouth, N. J. DA AB07–68–C–0415.

—**Philco-Ford Corp.,** Philadelphia, Pa. $7,881,930. Twelve months operation and maintenance for the Integrated Wide Band Communication System (IWCS) in Southeast Asia. Electronics Command, Fort Monmouth, N. J. DA AB07–68–C–0414.

—**Lockheed Aircraft,** Burbank, Calif. $3,181,900. Various amounts of spare parts for AH–56A Cheyenne helicopters. Van Nuys, Calif. Aviation Materiel Command, St. Louis, Mo. DA AJ01–68–C–1749.

—**Bell Helicopter,** Fort Worth, Tex. $1,101,132. Cylinder assemblies and flight controls for UH–1 helicopters. Hurst, Tex. Aviation Materiel Command, St. Louis, Mo. DA AJ01–68–A–0022.

—AVCO Corp, Stratford, Conn. $1,826,680. Rotor blades for UH–1 helicopters. Aviation Materiel Command, St. Louis, Mo. AF 41–608–67–A–3234.

19—**Viz Mfg. Co.,** Philadelphia, Pa. $1,026,285. Radio transmitter equipment. Electronics Command, Philadelphia, Pa. DA AB05–67–C–3194.

22—**Raytheon Co.,** Bedford, Mass. $38,202,222. Advanced development of the SAM –D missile system. Army Missile Command, Huntsville, Ala. DA AH01–67–C–1995.

—**Conductron Corp.,** St. Charles, Mo. $4,000,000. Classified electronic equipment. Electronics Command, Fort Monmouth, N. J.

—**Capitol Radio Engineering Institute,** Washington, D.C. $2,000,000. Classified electronic equipment. Silver Spring, Md. Electronics Command, Fort Monmouth, N. J.

—**Northrop Corp.,** Asheville, N.C. $1,104,314. XM183 and XM184 flares. Aberdeen Proving Ground, Md. DA AD05–68–C–0369.

23—**Columbus Milpar & Mfg. Co.,** Columbus, Ohio. $3,720,000. Metal parts for 81mm cartridge fuzes. Columbus and Westerville, Ohio. Ammunition Procurement & Supply Agency, Joliet, Ill. DA AA09–68–C–0300.

—**ACF Industries,** St. Louis Mo. $3,696,000. Metal parts for 81mm cartridge fuzes. Olivette, Mo. Ammunition Procurement & Supply Agency, Joliet, Ill. DA AA09–68–C–0291.

—**General Time Corp.,** Stamford, Conn. $1,823,137. Metal parts for M557 fuze boosters. Gadsden, Ala. Ammunition Procurement & Supply Agency, Joliet, Ill. DA AA09–68–C–0054.

—**REDM Corp.,** Wayne, N. J. $1.605,000. Metal parts for 81mm cartridge fuzes. Ammunition Procurement & Supply Agency, Joliet, Ill. DA AA09–68–C–0306.

—**Wilkinson Mfg. Co.,** Fort Calhoun, Neb. $1,097,250. Metal parts for 81mm cartridge fuzes. Ammunition Procurement & Supply Agency, Joliet, Ill. DA AA09–68–C–0308.

—**Caterpillar Tractor Co.,** Peoria, Ill. $6,633,042. Tractors. Mobility Equipment Command, St. Louis, Mo. DA AK01–67–C–1364.

—**Bell Aerospace Corp.,** Fort Worth, Tex. $44,750,378. Rotary wing blades for UH–1 helicopters. Hurst, Tex. Aviation Materiel Command, St. Louis, Mo. DA AJ01–68–A–0022.

—**Bulova, Inc.,** New York, N.Y. $1,599,322. Production engineering of XM577 fuzes. Picatinny Arsenal, Dover, N.J. DA AA21–69–C–0020.

—AVCO Corp., Stratford, Conn. $1,261,920. Turbine nozzles for UH–1 helicopter engines. Aviation Materiel Command, St. Louis, Mo. AF41608–67–A–3234.

24—**Bell Aerospace Corp.,** Fort Worth, Tex. $1,340,444. Main blade assemblies for UH–1 helicopters. Hurst, Tex. Aviation Materiel Command, St. Louis, Mo. DA AJ01–68A–0022.

25—**Flannigan Shipping Corp.,** New Orleans, La. $10,108,346. Stevedore and related terminal services. New Orleans and St. Rose, La. Military Traffic Management and Terminal Service, Brooklyn, N.Y. DA HC21–69–D–0056.

—**Lindekugel & Sons,** Mitchell, S.D. $1,497,907. Construction on the Red Rock Dam and Lake Red Rock Project, Des Moines River, Iowa. Engineer Dist., Rock Island, Ill. DA CW25–69–C–0007.

—**Kinemax Corp.,** Alexandria, Va. $1,329,172. Construction of a reinforced concrete bridge super structure at the Washington Aqueduct, Washington, D.C. Engineer Dist., Baltimore, Md. DA CW31–69–C–0002.

—Olin Mathieson Chemical Corp., East Alton, Ill. $1,325,551. 16mm projectiles. Marion, Ill. Ammunition Procurement & Supply Agency, Joliet, Ill. DA AA09–68–C–0320.

—**Yost Construction Co.,** Decatur, Ind. $1,000,433. Construction of access facilities at the Huntington, Ind., Reservoir. Engineer Dist., Louisville, Ky. DA CW27–69–C–0006.

26—**General Electric,** Burlington, Vt. $9,785,650. 20mm sub-systems for AH–1G helicopters and related supplies. Army Weapons Command, Rock Island, Ill. DA AF03–69–C–0004.

—**Benrus Watch Co.,** Ridgefield, Conn. $1,177,348. Wrist watches. Frankford Arsenal, Philadelphia, Pa. DA AA25–69–C–0011.

29—**Bulova Watch Co.,** Jackson Heights, N.Y. $3,662,400. Metal parts for 81mm cartridge fuzes. Valley Stream, N.Y. Ammunition Procurement & Supply Agency, Joliet, Ill. DA AA09–68–C–0283.

—**I.D. Precision Components Corp.,** Jamaica, N.Y. $1,762,992. Metal parts for 81mm cartridge fuzes. Gadsden, Ala. Ammunition Procurement & Supply Agency, Joliet, Ill. DA AA09–68–C–0471.

—**Z. D. Products,** El Segundo, Calif, $1,065,000. Metal parts for M48 fuzes. Ammunition Procurement & Supply Agency, Joliet, Ill. DA AA09–68–C–0356.

—Raytheon Co., Andover, Mass. $1,454,850. Repair and overhaul of RF oscillators for the Hawk missile system. Army Missile Command, Huntsville, Ala. DA AH01–68–A–0037.

30—**Northern Metal Co.,** Philadelphia, Pa. $8,755,114. Stevedoring, terminal handling, vehicle processing and services at Port Philadelphia, Pa. Military Traffic Management and Terminal Service, Brooklyn, N.Y. DA HC21–69–D–0055.

—**ITT Industrial Laboratories,** Fort Wayne, Ind. $4,890,000. Night vision goggles. Roanoke, Va. and San Fernando, Calif. Mobility Equipment Research & Development Center, Fort Belvoir, Va. DA AK02–69–C–0009.

—General Electric, Burlington, Vt. $3,590,000. 20mm guns and gun pods. Army Procurement Agency, New York, N.Y. DA AG25–68–C–1212.

—**Action Mfg. Corp.,** Philadelphia, Pa. $1,716,130. Metal fuze parts. Ammunition Procurement & Supply Agency, Joliet Ill. DA AA09–68–C–0472.

—**Hayes Albion Corp.,** Albion, Mich. $1,469,619. Metal parts for 81mm projectiles. Hillsdale Mich. and Richmond, Ind. Ammunition Procurement & Supply Agency, Joliet, Ill. DA AA09–68–C–0336.

—**ARF Products,** Raton, N.M. $1,031,238. AN/GRC–50 radio sets with ancillary items. Electronics Command, Philadelphia. Pa. DA AB05–68–C–0038.

31—LTV Electrosystems, Huntington, Ind. $24,388,344. Vehicular radio set components. $5,930,000. AN/PRC–25 radio sets. Electronic Command, Philadelphia, Pa. DA AB05–67–C–0171. DA AB05–68–C–0005.

—**ITT Corp.,** Nutley, N.J. $8,636,850. AN/GRC–144 radio sets. Clifton, N.J. Electronics Command, Philadelphia, Pa. DA AB05–68–C–0027.

—General Motors, Kokomo, Ind. $3,220,836. AN/PRT–4/PRR–9 squad radio sets. Electronic Command, Philadelphia, Pa. DA AB05–67–C–0161.

—**Electrospace Corp.,** Glen Cove, N.Y. $1,836,374. AN/PRC–77 radio sets and RT–841 receiver-transmitters. Electronics Command, Philadelphia, Pa. DA AB05–68–C–0034.

—**Chamberlain Mfg. Corp.,** Elmhurst, Ill. $3,038,100 Metal parts for 105mm projectiles. Waterloo, Iowa. Ammunition Procurement & Supply Agency, Joliet, Ill. DA AA09–68–C–0052.

—**Varo, Inc.,** Garland, Tex. $1,773,300. AN/TVS–3 searchlights. Electronics Command, Fort Monmouth, N.J. DA AB07–68–C–0291.

—**J. J. Fritch Co.,** Dallas, Tex. $1,375,400. Construction of four buildings for bachelor officers at Altus AFB, Okla. Engineer Dist., Albuquerque, N.M. DA CA47–69–C–0003.

DEPARTMENT OF THE NAVY

1—**American Mfg. Co.,** Fort Worth, Tex. $12,040,000. MK 25, MOD 2, projectiles for 8-inch and 55-caliber guns. Navy Ships Parts Control Center, Mechanicsburg, Pa. N00104–68–C–5480.

—**Chesapeake Instrument Corp.,** Shadyside Md. $3,756,365. Manufacture of sonar equipment and associated material. Naval Ship Systems Command. N00024–68–C–1332.

—**Sperry Rand,** Great Neck, N.Y. $3,584-000. Electronic equipment for sonar sets. Syosset, N.Y. Naval Ship Systems Command. N00024–68–C–1329.

—**General Dynamics.** Pomona, Calif. $3,200,000. Alterations to Terrier and Tartar missiles. Naval Ordnance Systems Command. N00017–68–C–2108.

—**Raytheon Co.,** Bedford, Mass. $2,429,000. Design and development of AN/SPG–53C radar. Naval Ordnance Systems Command. N00017–68–C–4206.

—**Tyco Laboratories,** Fairfield, N.J. $1,115,240. MK 30, MOD 3, fuzes for 5-inch, 38-caliber and 54-caliber gun ammunition. Navy Ships Parts Control Center, Mechanicsburg, Pa. N00104–68–C–5484.

—**Sewart Seacraft,** Berwick, La. $1,179,509. Construction of four 85-foot aluminum patrol craft. Naval Ship Systems Command. N00024–68–C–0362.

—**Vitro Corp. of America,** Silver Spring, Md. $1,081,200. Increased engineering, support services and facilities for Terrier, Tartar, Talos, Standard and Point Defense systems. Naval Ordnance Systems Command. N00017–68–C–4401.

—**Lanphier Construction Co.,** Corpus Christi, Tex. $1,949,500. Construction of a BOQ at the Naval Air Station, Corpus Christi, Tex. Naval Facilities Engineering Command. NBy–95184.

—**Greenhut Construction Co.,** Pensacola, Fla. $1,729,777. Rehabilitation of barracks and mess hall at the Naval Air Station, Pensacola, Fla. Naval Facilities Engineering Commnad. NBy–71103.

—**Stanfield Construction Corp. and S. L. Haeha, Inc.,** San Diego, Calif. $1,593,594. Construction of a mess hall at the Marine Corps Recruit Depot, San Diego, Calif. Naval Facilities Engineering Command. N62473–67–C–0025.

—**Jordan Co.,** Suisun City, Calif. $1,229,000. Construction of barracks at the Naval Training Center, San Diego, Calif. Naval Facilities Engineering Command. N62473–67–C–3064.

—**Viola, Inc.,** Oxnard, Calif. $1,273,000. Rehabilitation of barracks at the Construction Battalion Center, Port Hueneme, Calif. Naval Facilities Engineering Command. N62473–67–C–3117.

2—**McDonnell Douglas Corp.,** St. Louis, Mo. $45,622,900. Additional funding for F–4E aircraft. Naval Air Systems Command. N00019–67–C–0495.

—**Lockheed Aircraft,** Sunnyvale, Calif. $35,157,671. Tactical engineering services in support of the Fleet Ballistic Missile weapon system. Special Projects Office. N00030–69–C–0036.

—**General Dynamics,** Rochester, N.Y. $10,767,211. Manufacture of radio sets and URR radios. Naval Electronic Systems. Command. N00039–68–C–1585.

—**North American Rockwell Corp.,** Columbus, Ohio. $8,920,000. OV–10A helicopters. $8,800,000. T–2B aircraft. $6,255,365. Shipboard Integrated Operational Intelligence Center (IOIC) including associated equipment, maintenance and material management. Naval Air Systems Command. NOw 65–0118. N00019–68–C–0346. N00019–68–C–0552.

—**Northrop Corp.,** Newbury Park, Calif. $8,831,250. MQM–74A target drones. Naval Air Systems Command. N00019–68–C–0462.

—**General Dynamics,** Pomona, Calif. $5,900,000. Standard Arm missiles. Naval Air Systems Command. N00019–67–C–0074.

—**Garrett Corp.,** Phoenix, Ariz. $4,500,000. Product support program for T76–G–10/12 engines. Naval Air Systems Command. N00019–68–C–0354.

—**United Aircraft,** East Hartford, Conn. $1,386,890. General design, development and qualification testing of TF30–P–7 engines with pre-production ejector assembly kits. Naval Air Systems Command. N00019–68–C–0440.

—**Raytheon Co.,** Lowell, Mass. $1,109,638. Guidance and control groups for Chaparral guided missiles. Naval Air Systems Command. N00019–68–C–0323.

—**Control Data Corp.,** Bethesda, Md. $4,040,327. Engineering and support services for FBM trainnig installations. Special Projects Office. N00030–69–C–0011.

—**Adams Russell Co.,** Waltham, Mass. $1,867,000. Antenna system test sets. Naval Electronic Systems Command. N00039–68–C–2540.

—**Electromagnetic Technology Corp.,** Lansdale, Pa. $1,333,467. Manufacture of transistorized electronic counters. Colemar, Pa Naval Electronic Systems Command. N00039–68–C–2584.

—**Gulf Stream Industries.** Channelview, Tex. $1,379,700. Sixty-three 26-foot personnel boats. Naval Ship Systems Command. N00024–68–C–0364.

—**Peterson Builders, Inc.,** Sturgeon Bay, Wis. $1,270,894. Construction of two 100-foot torpedo retriever boats. Naval Ship Systems Command. N00024–68–C–0375.

—**Lockheed Aircraft,** Sunnyvale, Calif. $1,032.632. Design of an advanced guidance system for anti-radiation missile. Navy Purchasing Office, Los Angeles, Calif. N00123–68–C–1487.

3—**General Dynamics,** Rochester, N.Y. $9,126,672. Design, development and installation of an AUTEC sonar performance range. Naval Ship Systems Comamnd. N00024–68–C–1097.

—**LTV Aerospace Corp.,** Dallas, Tex. $5,184,478. A–7E aircraft. Naval Air Systems Command. N00019–68–C–0075.

—**Packard Bell Corp.,** Newbury Park, Calif. $3,223,914. Manufacture of AN/UPM–137 radar sets. Naval Electronic Systems Command. N00039–68–C–2585.

—**General Precision Systems,** Glendale, Calif. $1,000,000. MK 48 torpedo fire control system modification kits MK 101. Naval Ordnance Systems Command. N00017–68–C–1218.

—**Raytheon Co.,** Portsmouth, R. I. $1,052,450. Five sets of preproduction units of submarine sonar equipment. Naval Ship Systems Command. N00024–68–C–1341.

5—**Grumman Aircraft Engineering Corp.,** Bethpage, N.Y. $34,249,968. A–6A aircraft. Naval Air Systems Command. N00019–68–C–0106.

—**Grumman Aircraft Engineering Corp.,** Bethpage, N.Y. $11,825.000. Evaluation of the functional feasibility of a multisensor detection and attack system in a research and development flight test vehicle. Naval Air Systems Command. N00019–68–C–0055.

—**United Aircraft,** Stratford, Conn. $20,880,000. HH–53C helicopters. Naval Air Systems Command. N00019–68–C–0627.

—**United Aircraft,** Hartford, Conn. $1,359,004. Test, analysis and evaluation of modified TF30–P–3 engines. Naval Air Systems Command. N00019–68–C–0480.

—**McDonnell Douglas Corp.,** Long Beach, Calif., has been awarded the following four contracts by the Naval Air Systems Command:

$1.460.656. A–4H aircraft. N00019–67–C–0009.

$14.196,400. A–4F aircraft. N00019–67–C–0170.

$2,168.784. TA–4F aircraft. N00019–67–C–0170.

$1,066,925. Radome assemblies and pods. N00019–68–C–0626.

—**Lockheed Aircraft,** Burbank, Calif. $14,465,992. P–3C aircraft. Naval Air Systems Command. N00019–68–C–0073.

—**Sanders Associates,** Nashua, N. H. $10,020,560. Electronic equipment. $3,864,960. Electronic equipment. Naval Air Systems Command. N00019–68–C–0630 and NOw(A) 66–0356.

—**Hazeltine Corp.,** Little Neck, N.Y. $11,321,244. Airborne interrogater sets and related support items. $1,756,800. Detection transmitting sets, acoustic. Naval Air Systems Command. N00019–68–C–0544. N00019–68–C–0609.

—**Teledyne Systems,** Northridge, Calif. $12,420,000. FY 68 procurement of AN/ASQ–104 self-contained navigation systems and spares for CH–46D helicopters. Naval Air Systems Command. N00019–68–C–0623.

—**Raytheon Co.,** Santa Barbara, Calif. $3,898,193. Transmitters, control unit frequency dials, remote control units, gate generators and ancillary items for EA–6A aircraft. Goleta, Calif. Naval Air Systems. Command. N00019–68–C–0624.

—**North American Aviation,** Los Angeles, Calif. $2,421,628. VT–39E aircraft. Naval Air Systems Command. N00019–68–C–0025.

—**LTV Aerospace Corp.,** Dallas, Tex. $1,756–483, Development of new stores capability and envelope expansion for A–7A/B aircraft. Naval Air Systems Command. N00019–68–C–0298.

—**Sanders Associates,** Plainview, N.Y. $1,176,027. Radio directional finders, antennae, and engineering installation services. Naval Ship Systems Command. N00024–68–C–1319.

—**Johns Hopkins University,** Silver Spring, Md. $1,500,000. Research and development on Project Bumblebee. Naval Ordnance Systems Command. NOw 62–0604–C.

—**Vitro Corp.,** Silver Spring, Md. $1,082,875. Increased engineering and support services and facilities for Terrier, Tartar, Talos, Standard and Point Defense Systems. Naval Ordnance Systems Command. N00017–68–C–4401C.

—**General Electric,** Washington, D.C. $7,977,130. Work on Phase II Poseidon guidance. Pittsfield, Mass. Special Projects Office. N00030–66–C–0184.

—**Raytheon Co.,** Sudbury, Mass. $13,889,824. Poseidon guidance systems services and materials. Special Projects Office. N00030–66–C–0159 P0006.

—**M.I.T.,** Cambridge, Mass. $4.361,800. Poseidon guidance systems development. Special Projects Office. N00030–66–C–0189.

8—**Sperry Rand Corp.,** Long Island, N.Y. $5,050,000. Work on MK 68 gun fire control system computers. $1,340,603. Work on Terrier/Tartar guided missile system computers. Naval Ordnance Systems Command. N00017–68–C–2303 & N00017–67–C–2113.

—**Westinghouse Electric,** Baltimore, Md. $1,216,000. Training for the support of the technical and operational evaluation program on the MK 48, MOD 0, torpedo weapon system. Keyport, Wash. Naval Ordnance Systems Command.

—**Lockheed Missile & Space Co.,** Sunnyvale, Calif $4,824,000. Repair of Polaris hardware. Special Projects Office. N00030–69–C–0064.

—**Aerojet General,** Nimbus, Calif. $1,989,122. MK 52, MOD 1, rocket motors. Naval Ordnance Station, Indian Head Md. N00174–69–C–0004.

9—**Wesley of Flordia, Inc.,** Jacksonville, Fla. $1,394,000. Construction of barracks at the Naval Air Station, Cecil Field, Fla. Southeast Div., Naval Facilities Engineering Command, Charleston, S. C. NBy–84098.

10—**General Electric,** Washington, D.C. $10,290,000. Poseidon fire control and support equipment. Pittsfield, Mass. Special Projects Office. N00030–66–C–0166 Mod. P012.

—**Sperry Rand Corp.,** Great Neck, N.Y. $6,213,000. Terrier MK 76, MODS 3&5, fire control system modernization. Naval Ordnance Systems Command. N00017–67–C–0045.

—**Sperry Rand Corp.,** Great Neck, N.Y. $6,000,000. Inertial navigation subsystem equipment and supporting items for seven Fleet Ballistic Missile Submarines within the Poseidon submarine conversion program. Syosset, N.Y. Naval Ship Systems Command. N00024–68–C–5100.

—**General Instrument Corp.,** Chicopee, Mass. $2,571,899. Bomb fuzes for the Snakeye 500-lb. bomb. Navy Ships Parts Control Center, Mechanicsburg, Pa. N00104–68–C–5487.

—**Lockheed Missile & Space Co.,** Sunnyvale, Calif. $1,460,679. Missile test readiness equipment. Special Project Office. N00030–67–C–0051.

—**Harbor Boatbuilding Co.,** Terminal Island, Calif. $1,264,388. Regular overhaul of the minesweepers USS Guide (MSO–447) and USS Gallant (MSO–489). Supervisor of Shipbuilding, Conversion and Repair, Eleventh Naval Dist., Long Beach Calif.

11—**United Aircraft,** East Hartford, Conn. $1,280,529. $1,268,637. J52 engines on A–4E and A–6A aircraft. Aviation Supply Office, Philadelphia, Pa. N00383–9–69–000A–AF421. N00383–9–69–000A–AF420.

—**Sperry Rand Corp.,** Syosset, N.Y. $1,250,000. Technical services in support of navigational systems on board Navy oceanographic and research vessels. Navy Purchasing Office, Brooklyn, N.Y. N00140–68–D–0488.

12—**Sperry Rand Corp.,** Syosset, N.Y. $11,095,930. Field engineering and technical assistance for the 1969 FY Polaris submarine program. Naval Ship Systems Command. N00069–C–5019.

—**General Electric,** Schenectady, N.Y. $5,960,000. Nuclear propulsion components. Naval Ship Systems Command.

—**Cosmodyne Corp.,** Torrance, Calif. $1,386,924. Missile cradles for MK 12 and MK 14, MOD O, missiles. Naval Air Engineering Center, Philadelphia, Pa. N00156–69–C–0504.

15—**Kilgore Corp.,** Toone, Tenn. $11,599,500. MK 45, MOD O, aircraft parachute flares. Navy Ships Parts Control Center, Mechanicsburg, Pa. N00104–68–C–5498.

—**Curtiss Wright Corp.,** Wood-Ridge, N.J. $3,961,859. Spare parts in support of J65W16A engines used on A–4B/C aircraft. Aviation Supply Office, Philadelphia, Pa. F41608–67–A–5900–GBGW.

—**Litton Systems,** Silver Spring, Md. $1,982,423. Electronic countermeasure equipment. Naval Air Systems Command. N00019–69–C–0041.

—**Carrier Corp.,** Alexandria, Va. $1,329,937. 150-ton centrifugal air conditioning units. Naval Ship Systems Command. N00024–69–C–5060.

17—**Sperry Rand Corp.,** Syosset, N.Y. $3,476,813. Repair and modification of U.S. and U.K. Fleet Bailistic Navigation Subsystem components. Naval Ship Systems Command. N00024–69–C–5015.

—**General Dynamics,** Groton, Conn. $1,221,412. Preparation and submission of various type advanced submarine strategic missile systems. Naval Ship Systems Command. N00024–68–C–0345.

18—**Lockheed Aircraft,** Marietta, Ga. $7,696,180. Materials and services to perform progressive aircraft rework on C–130 aircraft, including overhaul of components. Naval Air Systems Command. N00019–67–C–0231.

—**United Aircraft,** Stratford, Conn. $3,440,159. Airframe parts for CH–53A helicopters. Aviation Supply Office. Philadelphia, Pa. N00383–69–A–3900–0017.

—**G. L. Cory, Inc.,** San Diego, Calif. $2,709,731. Construction of an electronics maintenance school at the Naval Training Center, San Diego, Calif. Naval Facilities Engineering Command. N62473–67–C–3150.

—**Sperry Rand Corp.,** Great Neck, N.Y. $2,205,000. Production of Signal Data Converters. Naval Ordnance Systems Command.

—**Litton Systems,** Woodland Hills, Calif. $1,045,869. Spares in support of inertial navigation systems. Naval Air Systems Command. N00019–67–C–0623.

19—**Newport News Shipbuilding & Dry Dock Co.,** Newport News, Va. $143,500,000. Design and construction of two guided-missile, nuclear-powered frigates. Naval Ship Systems Command. N00024–68–C–0323.

—**United Aircraft,** Hartford, Conn. $4,370,368. Development test of the TF30–P–12 engine. Trenton, N.J. Naval Air Systems Command. N00019–68–C–0533.

—**Grumman Aircraft Engineering Corp.,** Segundo, Calif. $1,000,000. Contract definition phase of the VFX weapon system. Naval Air Systems Command. N00019–69–C–0053.

—**LTV Aerospace Corp.,** Dallas, Tex. $1,000,000. Contract definition phase of the VFX weapon system. Naval Air Systems Command. N00019–69–C–0052.

—**General Dynamics,** San Diego, Calif. $1,000,000. Contract definition phase of the VFX weapon system. Naval Air Systems Command. N00019–69–C–0047.

—**North American Rockwell Corp.,** El Segundo, Calif. $1,000,000. Contract definition phase of the VFX weapon system. Naval Air Systems Command. N00019–69–C–0048.

—**McDonnell Douglas Corp.,** St. Louis, Mo. $1,000,000. Contract definition phase of the VFX weapon system. Naval Air Systems Command. N00019–69–C–0051.

22—**Boeing Co.,** Morton, Pa. $2,579,473. After rotor blades for CH/UH–46 helicopters. Aviation Supply Office, Philadelphia, Pa. N00383–68–A–5601–0289.

—**L. H. Lacy Co.,** Dallas, Tex. $1,245,250. Construction of an aircraft parking apron at the Naval Auxiliary Air Station, Chase Field, Tex. Gulf Div., Naval Facilities Engineering Command, New Orleans, La. NBy–90451.

23—**Alsco, Inc.,** St. Louis, Mo. $13,919,088. Rocket launchers. Naval Air Systems Command. N00019–68–C–0562.

—**E. E. Black, Ltd.,** Honolulu, Hawaii. $4,027,500. Construction of sewage collection and treatment facilities at the Public Works Center, Pearl Harbor, Hawaii. Pacific Div., Naval Facilities Enigneering Command, Honolulu, Hawaii. NBy–82366.

—**Alsco, Inc.,** St. Louis, Mo. $1,854,620. Rocket launchers. Naval Air Systems Command. N00019–67–C–0621.

—**I.T. & T.,** Easton, Pa. $1,790,980. QKW-1132 travelling wave electron tubes used in classified equipment. Electronics Supply Office, Great Lakes, Ill. N00126–68–C–0148.

—**Northwest Construction Co.,** San Francisco, Calif. $1,432,906. Construction of a damage control school at the Treasure Island Naval Station, San Francisco, Calif. Western Div., Naval Facilities Engineering Command, San Bruno, Calif. NBy–854445.

—**Ravtheon Co.,** Waltham, Mass. $1,149,000. QKW1132 travelling wave electron tubes used in classified equipment. Electronics Supply Office, Great Lakes, Ill. N00126–68–C–6131.

—**Dillingham Corporation of Nevada,** Honolulu, Hawaii. $1,092,000. Construction of shoreline protection of the Johnston Atoll. Pacific Div., Naval Facilities Engineering Command, Honolulu, Hawaii. NBy–92942.

24—**Hughes Aircraft,** Culver City, Calif. $15,000,000. Phoenix missiles. Naval Air Systems Command. NOw 63–0379.

—**Allen & O'Hara, Inc.,** Memphis, Tenn. $1,373,240. Construction of an exchange retail store and cafeteria at Naval Air Station, Memphis, Tenn. Southeast Div., Naval Facilities Engineering Command, Charleston, S.C. NBy–81501.

—**General Dynamics,** Groton, Conn. $154,000,000. Construction of nuclear-powered submarines. Naval Ship Systems Command.

25—**Sellen Construction Co.,** Seattle, Wash. $5,341,700. Construction of an engineering building at the Naval Shipyard, Bremerton, Wash. Northwest Div., Naval Facilities Engineering Command, Seattle, Wash. NBy–84987.

—**Lockheed Aircraft,** Burbank, Calif. $4,000,000. Change in the configuration of P–3B aircraft to YP–3C and for associated materials and services. Naval Air Systems Command. N00019–68–C–0043.

—**American Mfg. Co.,** Fort Worth, Tex. $2,382,360. MK 52, MOD 0, projectiles for use in 5-inch, 38 cal. gun ammunition. Navy Ships Parts Control Center, Mechanicsburg, Pa. N00104–67–C–0083.

—**Schroeder Construction, Inc.,** Fall River, Mass. $1,372,000 Construction of a technical training building extension at the Naval Destroyer School, Newport, R.I. Northeast Div., Naval Facilities Engineering Command, Boston, Mass. N62464–67–C–0287.

26—**Vitro Corp.,** Silver Spring, Md. $16,748,865. Fleet ballistic missile program system engineering. $2,589,925. A receiving buoy subsystem. Special Projects Office. N00030–69–C–0039. N00030–68–C–0216.

29—**United Aircraft,** Stratford, Conn. $1,761,050. CH–53A airframe parts. Aviation Supply Office, Philadelphia, Pa. N00383–69–A–3900–0032.

—**Honeywell, Inc.,** Hopkins, Minn. $1,571,908. Work on MK 46 torpedoes and related equipment. Naval Ordnance Systems Command. N00017–68–C–1306.

—**Reid & Hope,** Suffolk, Va. $1,190,133. Construction of an electronics training building addition at the Naval School Command, Norfolk, Va. Atlantic Div., Naval Facilities Engineering Command, Norfolk, Va. NBy–88502.

30—**Grumman Aircraft Engineering Corp.,** Bethpage, N.Y. $6,110,000. EA–6A aircraft. Naval Air Systems Command. N00019–68–C–0209.

—**General Dynamics,** Pomona, Calif. $3,385,510. Standard Arm missiles. Naval Air Systems Command. N00019–67–C–0399.

—**Sylvania Electric Products,** Waltham, Mass. $1,259,987. AN/PRC–90 radio sets.. Naval Air Systems Command. N00019–68–C–0592.

—**Bunker Ramo Corp.,** Silver Spring, Md. $1,193,400. Work on ECM equipment. Naval Air Systems Command. N00019–68–C–0210.

—**Sperry Rand Corp.,** Charlottesville, Va. $1,269,357. Degaussing equipment. Naval Ship Systems Command. N00024–69–C–5040.

31—**General Electric,** Schenectady, N.Y. $21,899,500. Research and development in nuclear propulsion. Naval Ship Systems Command. N00024–67–C–5016.

—**Aerojet-General Corp.,** Sacramento, Calif. $13,948,455. Production of MK 56 mines. Naval Ordnance Systems Command. N00017–68–C–1201.

—**American Mfg. Co.,** Fort Worth, Tex. $12,155,572. MK 82, MOD 1, bomb bodies for 500-lb. bombs. Navy Ships Parts Control Center, Mechanicsburg, Pa. N00104–68–C–0745 MOD P014.

—**Lockheed Missiles & Space Co.,** Sunnyvale, Calif. $3,488,715. Re-entry systems effectiveness studies. Special Projects Office. N00030–69–C–0066.

—**Atlantic Research Corp.,** Alexandria, Va. $2,596,440. Classified work. Naval Ordnance Systems Command.

—**United Aircraft,** East Hartford, Conn. $1,646,117. TF30P–3 engine spare parts for F–111A aircraft. Aviation Supply Office, Philadelphia, Pa. N00383–9–69–000A–AF518.

DEPARTMENT OF THE AIR FORCE

1—**Modulux, Inc.,** Newark, Calif. $2,647,610. Production of relocatable buildings. Warner Robins Air Materiel Area (AFLC), Robins AFB, Ga. 0960e–68–C–2820.

—**Pan Amenican World Airways,** New York, N.Y. $102,097,000. Operation of the Eastern Test Range. Eastern Test Range, Patric AFB, Fla. F08606–68–C–0040.

—**Lockheed Aircraft,** Ontario, Calif. $7,000,000. FY 69 maintenance services for the Advanced Pilot Training Program. Luke AFB, Ariz. Sacramento Air Materiel Area, (AFLC), McClellan AFB, Calif. F04606–69–C–0001.

—**Loral Corp.,** Bronx, N.Y. $2,538,877. Work on AN/ALR–31 electronic countermeasure system. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio. F33657–68–C–0531.

—**I. B. M. Corp.,** Gaithersburg, Md. $3,327,660. Work on a large aperture seismic array experimental signal processing system. Electronic Systems Div., (AFSC), L. G. Hanscom Field, Mass. F19628–67–C–0198.

2—**RCA,** Moorestown, N.J. $5,225,540. Depot level maintenance and supply support for instrumentation radars. Air Force Eastern Test Range, (AFSC), Patrick AFB, Fla. F08606–68–C–0041.

3—**North American Rockwell Corp.**, Anaheim, Calif. $4,479,088. FY 1969 engineering services in support of the Minuteman missile system. Oklahoma City Air Materiel Area, (AFLC), Hill AFB, Utah. F42600–69–C–0012.

—RCA, Camden, N.J. $13,999,122. Operation, maintenance and logistic support of White Alice Communications System for FY 1969. Anchorage, Alaska. Sacramento Air Materiel Area, (AFLC), McClellan AFB, Calif. F4606–68–C–0740.

—**Thiokol Chemical Corp.**, Brigham City, Utah. $1,000,000. Production of illuminating flares. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio. F33657–68–C–1387.

—**Ryan Aeronautical Co.**, San Diego, Calif. $10,319,000. Production of MQM34A and D target drones and related items of equipment. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio. F33657–68–C–0001–P005.

—**Northrop Corp.**, Hawthorne, Calif. $1,700,000. F–5 aircraft. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio. F33657–68–C–1036.

—**Emerson Electric Co.**, St. Louis, Mo. $4,565,000. General purpose automatic test system in support of various types of aircraft. San Antonio Air Materiel Area, (AFLC), Kelly AFB, Tex. F41608–68–C–8961.

5—**General Electric**, Syracuse, N.Y. $8,304,330. Operation, maintenance and logistic support of spacetrack sensor sites for FY 1969. Shemya AFS, Alaska. Sacramento Air Materiel Area, (AFLC), McClellan AFB, Calif. F04606–68–I–0848.

—**General Electric**, Cincinnati, Ohio. $18,201,600. Production of J–79–17 engines for F–4 aircraft. Evendale, Ohio. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio. F33657–68–C–0074–P003.

—**General Electric**, Cincinnati, Ohio. $11,834,000. J79–GE–10 engine special support equipment, kits and related data. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio. F33657–68–C–0632.

—**RCA**, Camden, N.J. $25,597,500. Materials, operational services and maintenance of the Ballistic Missile Early Warning System microwave communications facilities at Clear Air Force Station, Alaska, and other overseas sites. Sacramento Air Materiel Area, (AFLC), McClellan AFB, Calif. F04606–68–C–0789.

—**General Dynamics**, Fort Worth, Tex. $1,440,243. Operation and maintenance of the radar target scatter site at the White Sands Missile Range, N.M. Air Force Missile Development Center, Holloman AFB, N.M. F29600–68–C–0036.

—**LTV Electrosystems**, Salt Lake City, Utah. $3,905,000. Production of navigational aids. Garland, Tex. Rome Air Development Center, Griffiss AFB, N.Y. F30602–68–C–0382.

—**Marwaid Steel Co. and Pascoe Steel Corp.**, Richmond, Calif. $5,288,062. Steel arch aircraft shelters. 2750th Air Base Wing, Wright-Patterson AFB, Ohio. F33601–68–C–1135.

—**Young Metal Products**, East Chicago, Ind. $2,494,495. Steel arch aircraft shelters. 2750th Air Base Wing, Wright-Patterson AFB, Ohio. F33601–68–C–1135.

—**Sylvania Electric Products**, Needham Heights, Mass. $3,462,498. Support of a ground electronics system. Space & Missile Systems Organization, (AFSC), Los Angeles, Calif. F04694–67–C–0050–P090.

—**Universal Airlines**, Ypsilanti, Mich. $2,268,474. Domestic cargo airlift service in support of Air Force Logistics Command LOGAIR and Navy QUICKTRANS systems. Military Airlift Command. F11626–68–C–0038.

—**Saturn Airways**, Oakland, Calif. $2,033,078. Domestic cargo airlift support of AFLC LOGAIR system. Military Airlift Command. F11626–68–C–0023–P021.

8—**System Development Corp.**, Santa Monica, Calif. $15,443,149. Computer program updating and preparation of a system training program. Sacramento Air Materiel Area, (AFLC), McClellan AFB, Calif. F04606–68–C–0777.

—**RCA**, Moorestown, N.J. $1,877,897. Operation, maintenance and logistic support of the Moorestown Spacetrack facility for FY 1969. Sacramento Air Materiel Area, (AFLC), McClellan AFB, Calif. F04606–68–C–0810.

10—**General Electric**, Philadelphia, Pa. $33,900,000. Production of the MK 12 re-entry system. Space & Missile Systems Organization, (AFSC), Norton AFB, Calif. F04701–68–C–0178.

—**Boeing Co.**, Seattle, Wash. $6,548,726. Design, development, study and test programs for the Minuteman. Space & Missile Systems Organization, (AFSC), Norton AFB, Calif. AF04–694–946.

—**North American Aviation**, Los Angeles, Calif. $5,857,786. Kits for the wing center section structure assembly of the F–100 aircraft and modification kits for the outer wing panel of the F–100 aircraft. Sacramento Air Materiel Area, (AFLC), McClellan AFB, Calif. F04606–67–A–1813–0259.

11—**Hayes International Corp.**, Birmingham, Ala. $9,601,754. Services and materials for inspection and repair, and modification of KC–135 aircraft. Oklahoma City Air Materiel Area, (AFLC), Tinker AFB, Okla. F34601–68–C–3607.

—**North American Rockwell Corp.**, Anaheim, Calif. $1,500,000. Overhaul and repair of air ground missile parts and components. Oklahoma City Air Materiel Area, (AFLC), Tinker AFB, Okla. F34601–68–C–4485.

12—**General Electric**, West Lynn, Mass. $5,273,011. J85–GE–17A engines in support of A–37B aircraft. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio. F33656–67–C–1659–P01.

15—**Boeing Co.**, Seattle, Wash. $1,700,000. Modernization of the Minuteman force at Whiteman AFB, Mo. Space & Missile Systems Organization, (AFSC), Los Angeles, Calif. F04701–68–C–0295.

—**Boeing Co.**, Seattle, Wash. $3,000,000. Checkout and test of Minuteman III and associated elements. Vandenberg AFB, Calif. Space & Missile Systems Organization, (AFSC), Los Angeles, Calif. F04694–67–C–0101.

16—**TRW, Inc.**, Redondo Beach, Calif. $5,783,400. Development support of the Minuteman weapon system program. Norton AFB, Calif. Space & Missile Systems Organization, (AFSC), Los Angeles, Calif. F04694–67–C–0127 P004.

—**McDonnell Douglas Corp.**, Tulsa, Okla. $2,650,000. Modification and maintenance of B–52 aircraft. Oklahoma City Air Materiel Area, (AFLC), Tinker AFB, Okla. F34601–69–C–0009.

—**Westinghouse Electric**, Baltimore, Md. $25,796,401. Modification of B–57B aircraft. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio. F33657–68–C–1050.

17—**Lockheed Aircraft Service Co.**, Jamaica, N.Y. $2,123,750. Inspection, repair and maintenance of C–121 aircraft. Sacramento Air Materiel Area, (AFLC), McClellan AFB, Calif. F04606–69–C–0005.

—**LTV Electrosystems, Inc.**, Greenville, N.C. $4,336,310. Inspection and repair as necessary of F–101 aircraft. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio F42600–69–D–0026.

18—**Cessna Aircraft**, Wichita, Kan. $3,987,500. Production of A–37B aircraft, spare kits, aerospace ground equipment and data. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio. F33657–68–C–1290.

19—**Philco-Ford Corp.**, Palo Alto, Calif. $7,805,000. Development, fabrication and launch of two communication spacecraft. Space & Missile Systems Organization, (AFSC), Los Angeles, Calif. F04701–68–C–0149.

22—**Fairchild Hiller Corp.**, St. Augustine, Fla. $4,161,773. Inspection and repair, as necessary, of F/TF–102A aircraft. Crestview, Fla. San Antonio Air Materiel Area, (AFLC), Kelly AFB, Tex. F41608–69–C–0411.

23—**American Electric, Inc.**, La Mirada, Calif. $1,761,263. Production of airborne ammunitions, Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio. F33657–68–C–1198–P002.

25—**Boeing Co.**, Wichita, Kan. $2,664,559. Aerospace ground equipment and technical order kits for B–52 aircraft. Oklahoma City Air Materiel Area, (AFLC), Tinker AFB, Okla. F34601–68–C–1902.

—**FMC Corp.**, Santa Clara, Calif. $1,371,193. Airborne munitions. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio. F33657–68–C–1199–P002.

—**General Dynamics**, San Diego, Calif. $1,051,797. Launch support services at Vandenberg AFB, Calif. Space and Missile Systems Organization, (AFSC), Los Angeles, Calif. F04701–68–C–0140.

29—**Federal Electric Corp.**, Paramus, N.J. $28,380,570. Operation and maintenance of Air Force Western Test Range technical facilities. Vandenberg AFB, Calif. Air Force Western Test Range. F04697–67–C–0001.

—**Edgerton, Germeshausen & Grier**, Albuquerque, N.M. $2,500,000. Development and installation of the advanced research electromagnetic simulation facility. Air Force Special Weapons Center, Kirtland AFB, N.M. F29601–69–C–0004.

—**ITT Technical Services, Inc.**, Paramus, N.J. $1,245,000. Maintenance and operation of AF Plant 42, Palmdale, Calif. Air Force Flight Test Center, Edwards AFB, Calif. F04611–68–C–0001.

30—**Lockheed Aircraft Corp.**, Sunnyvale, Calif. $2,000,000. Reentry vehicle technology and observables program. Space & Missile Systems Organization, (AFSC), Los Angeles, Calif. F04701–68–C–0157.

OFF SHORE PROCUREMENT

5—**Norwegian Defense Research Establishment**, Kjeller, Norway. $3,995,200. Installation of a larger aperture seismic array research facility in Norway. European Office, Air Force Aerospace Research Command.

11—**Canadian Marconi Co.**, Montreal, Quebec, Canada. $1,112,016. AN/APN–175(V)–3 navigation sets for HH–53C aircraft. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio.

Electronics High Dollar Procurements Forecast

The Defense Electronics Supply Center has issued its 16th annual Forecast of High Dollar Procurements under the Very Important Program (VIP). The most recent list does not include the Hi-Valu list that was part of last year's forecast.

The current VIP list shows items expected to be bought during at least one quarter of the next 12 month period. Items which were on last year's list, but which will not be procured during FY 1969, have been deleted from VIP List No. 16.

In his letter transmitting the list, Colonel W. L. Sims, USMC, Director of Procurement and Production, warned that the forecast was subject to revisions, that it was in no way binding, and that it should not be interpreted to mean that any solicitation has been made for items listed. Actual procurement of items will be initiated with individual Invitations for Bid and/or Requests for Proposal, which will be announced in the *Commerce Business Daily.*

Colonel Sim's letter noted that small business and/or labor surplus area set-aside contracts probably would be made for some of the forecast items.

Comments and requests for the 18-page forecast list should be sent to Defense Electronics Supply Center (DESC-PPA), Dayton, Ohio 45401. Inquiries about specific items listed should be sent to the center, with attention directed to DESC-FL.

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New Air Force Human Resources Lab To Focus on Training, Management

A new Air Force laboratory organization has been established to be the focal point for research and development in human resources education, training and managament.

Called the Air Force Human Resources Laboratory (AFHRL), it is a subordinate command of Air Force Systems Command (AFSC), and is headquartered at Brooks AFB, Tex.

AFHRL is charged with planning and executing research and exploratory-advanced development programs in personnel selection, management and career development; personnel motivation and retention; personnel force structures and composition, training techniques and equipment; personnel requirements for advanced weapon systems; and career education.

The new laboratory will also provide technical and management assistance in support of studies, analyses, development planning activities, acquisition, test evaluation, modification or operation of aerospace systems, and related equipment.

The laboratory's two major divisions are the Personnel Research Division, located at Lackland AFB, Tex., near the Brooks AFB headquarters, and the Training Research Division, located at Wright-Patterson AFB, Ohio. The Personnel Research Division was formerly a laboratory under the Aerospace Medical Division (AMD) of AFSC, and the Training Research Division was part of AMD's Behavioral Sciences Laboratory.

Among the first projects of the new laboratory will be establishment of training research detachments at one or more of Air Training Command's pilot training schools and technical training centers. There are plans to substantially expand training research and development activities.

Initial manpower allocations put 23 persons at the headquarters, 219 people at the Personnel Research Division and 39 individuals at the Training Research Division. AFHRL is one of nine laboratories under the supervision of Brigadier General Raymond A. Gilbert, Director of Laboratories for the Air Force Systems Command.

Seminars Scheduled by DSA on New Logistic Data System

Two identical seminars have been scheduled by the Defense Supply Agency to acquaint government contractors and other industry representatives with the Federal Item Identification Guide (FIIG) program, an improved logistics data system now being established.

The two one-day seminars will be held October 22 and 23 in the Defense Supply Agency auditorium at Cameron Station, Alexandria, Va. No admission charge will be made but advance registration is required.

The FIIG program was designed to provide a computer-oriented replacement for Description Patterns and other documents in the Federal Catalog System. It now covers more than 30 commodity areas ranging from bolts to compressors. Eventually all supplies purchased and stocked by the U. S. Government will be covered by the guides.

Registration forms and a descriptive brochure may be obtained from S. S. Horwitz, (DSAH–SCC), Defense Supply Agency, Cameron Station, Alexandria, Va. 22314.